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ABSTRACT

This is the first in a series of Division of Manpower Intelligence (DMI) reports designed to contribute to a better understanding of health education and training. This report presents national and regional estimates of the numbers of professional, technical, and other personnel employed in hospitals in the United States. Number of employees, budgeted positions vacant, and additional current manpower needs are reported by occupational category of personnel and by ownership and type of hospital. The primary focus of the statistics and analyses in this report is on community hospitals which made up approximately 6,500 out of an estimated 7,930 hospitals in 1969. Future reports will present the results of more detailed analyses of levels of staffing and of needs. (GEB)



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HEALTH MANPOWER IN HOSPITALS

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Health Manpower in Hospitals

by

Garrie J. Losee and Marion E. Altenderfer
Division of Manpower Intelligence

U.S. DEPARTMENT OF HEALTH, EDUCATION, AND WELFARE
Public Health Service
National Institutes of Health
Bureau of Health Manpower Education

DISCRIMINATION PROHIBITED—Title VI of the Civil Rights Act of 1964 states: "No person in the United States shall, on the ground of race, color or national origin, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any program or activity receiving Federal financial assistance." Therefore, health manpower data collection, like every program or activity receiving Federal assistance from the Department of Health, Education, and Welfare, must be operated in compliance with this law.

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This is the first of a series of DMI reports.


The publication reflects the establishment of the Division of Manpower Intelligence, Bureau of Health Manpower Education, National Institutes of Health.

The new Division is intended to provide a focus for health manpower data and analysis. It will complement the program planning and evaluative activities of other Divisions within the Bureau, as well as the research analytical activities of other components of NIH.

"Health Manpower in Hospitals," the first DMI report, provides descriptive statistics on personnel resources in hospitals. The data indicate that, as hospital employment has increased in recent years, budgeted vacancies and estimated deficiencies (between supply and requirements) have declined.

This trend needs further study and interpretation. It may well demonstrate, however, that some significant progress is being made in the recruitment, training, and employment of health manpower—especially allied health personnel. Obviously, our Nation still has a concerted effort to make in adding to this critical human resource.

These DMI reports are designed to serve one principal purpose: contributing to a better understanding of health manpower education and training. In order to further this endeavor, comments are solicited.



EUGENE A. CONFREY, Ph.D.

Acting Director

Division of Manpower Intelligence

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National Institutes of Health.

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Preface

The Hospital Manpower Survey was conducted in 1969 by the Bureau of Health Manpower Education in collaboration with the American Hospital Association and the National Center for Health Statistics (N.C.H.S.) of the Public Health Service. The N.C.H.S. was the collecting agent. The survey provides estimates of the number of professional and technical health personnel and other personnel employed in hospitals in the United States on March 28, 1969, and of the numbers of additional full-time personnel needed to provide optimum care at the time of the survey. The results for registered hospitals update those from a 1966 survey conducted by the American Hospital Association for the Public Health Service. (1)

Several organizations and individuals contributed to the development and implementation of the Hospital Manpower Survey. Dr. James Cooney, formerly Director, Bureau of Research Services, American Hospital Association, and his staff provided consultation during the formative stages of planning the survey and aided in implementing the survey by obtaining the cooperation of State Hospital Associations in the survey. Mr. Raymond Giesler, Executive Director, Hospital Educational and Research Foundation of Pennsylvania, provided valuable advice on the content and format of the survey questionnaire.

The Health Facilities Branch, Division of Health Resources Statistics, National Center for Health Statistics, directed during the survey period initially by Peter Hurley and later by Gloria Hollis, selected the sample of hospitals to be surveyed; conducted the mail survey; and processed the completed questionnaires. The Division of Computer Research and Technology, National Institutes of Health, produced the tabulations.

Many people in the Bureau of Health Manpower Education contributed to the development and implementation of the survey, especially David Hoover and Maryland Pennell, Division of Allied Health Manpower, and Stanley Siegel, Division of Nursing.

The most important contributors are the persons on the staffs of the hospitals that participated in the survey. The high rate of response in this survey can be regarded as a concern by hospital administrators and their staffs for securing adequate manpower resources.

Introduction

This report presents national and regional estimates of the numbers of professional and technical health personnel and of other personnel employed in hospitals in the United States on March 28, 1969, and of the numbers of additional full-time personnel needed to provide optimum patient care at the time of the survey. Number of employees (total, full time and part time), budgeted positions vacant, and additional current manpower needs are reported by occupational category of personnel and ownership and type of hospital.

With the increasing utilization of hospitals by the U.S. population and the impact of medicare for persons 65 years of age and over, current knowledge of the demand for health manpower in hospitals has become critical to the study of total health manpower supply and demand in the United States. In April 1966 the American Hospital Association conducted a survey of manpower resources in hospitals on behalf of the Public Health Service to obtain detailed information on the employment of health manpower and on manpower needs in hospitals. That survey, covering all hospitals registered by the American Hospital Association, was the first nationwide collection of detailed data on various categories of hospital personnel since 1959. The information from the 1966 survey, following closely after the enactment of

medicare, did not reflect the impact of medicare or medicaid on hospital utilization and hospital manpower resources.

In April 1969 the Public Health Service conducted the Hospital Manpower Survey to obtain current information on manpower employment and needs in hospitals. For hospitals registered by the American Hospital Association, the new data together with the 1966 results furnish measures of trends in hospital manpower utilization and requirements.

Data on health manpower in hospitals are estimated from the survey for all hospitals in the United States to provide a measure of current manpower employment as well as requirements. The primary focus of the statistics and analyses in this report, however, is non-Federal short-stay general and special hospitals. These hospitals, termed community hospitals by the American Hospital Association, included 6,500 out of an estimated 7,930 hospitals in 1969. They accounted for half of the hospital beds and 80 percent of the health manpower employed in hospitals.

This report presents summary data from the 1969 Hospital Manpower Survey. Future reports will present the results of more detailed analyses of levels of staffing and of needs.

Source and Limitations of the Data

The statistics presented in this report were derived from responses to a questionnaire mailed to a national probability sample of 1,062 hospitals, selected from the 8,147 hospitals contained in the Master

Facility Inventory of 1967 (2), according to a single-stage stratified sample design.

The American Hospital Association encouraged State hospital associations to conduct surveys among

their own hospitals, utilizing a survey package developed by the National Center for Health Statistics. Twenty-five States participated.

Of the questionnaires mailed to the 1,062 hospitals, 1,031 hospitals were found to be in business and meeting the definition of a hospital. (Sixteen hospitals were found to be out of business and 15 did not meet the definition of a hospital.) Completed questionnaires were obtained from 998 or 97 percent of the 1,031 sample hospitals.

The high response rate achieved in the survey was the product of both high motivation on the part of hospital administrators to participate in the survey and an intensive followup procedure. After an initial mailing, one regular and one certified mailing were made to nonrespondent hospitals. Personal visits by field agents of the Bureau of the Census gained the cooperation of about 100 hospitals in addition to those which responded to the mailed questionnaires.

Since the statistics presented in this report are based on a sample of hospitals rather than on all hospitals, they are subject to sampling error. Estimates of the sampling error for the types of statistics contained in the report are shown in appendix I. The coefficient of variation for many of the estimates of employment in occupational categories is approximately 3 percent.

In addition to sampling errors, the statistics are subject to measurement errors. These include errors due to hospital nonresponse, information incompletely or inaccurately reported, and processing errors. With a hospital nonresponse rate of only 3 percent, a 100-percent verification of card punching, and several

stages of editing, errors due to hospital nonresponse and processing errors are considered to be negligible. However, the data on manpower needs are subject to possibly large measurement errors due to considerable nonreporting for these items. Also, the data on both employment and manpower needs for several occupational categories are subject to possibly large measurement error due to misclassification of personnel and either underreporting or overreporting of personnel.

The statistics shown for manpower needs (budgeted vacant positions and additional full-time personnel needed to provide optimum care for present patient load) are based on reports for only part of the hospitals. Out of the 1,031 sample hospitals, 186 did not report information on manpower needs in any occupational category. These hospitals were considered to have no personnel needs. The national estimates on needs should therefore be considered as minimal.

The estimating procedure used in this survey to produce national estimates of current employment in hospitals and manpower needs was performed in three steps: (1) Inflation by reciprocals of the probabilities of sample selection, (2) adjustment for hospitals' nonresponse, and (3) ratio adjustment to bring the universe of hospitals to a level comparable to that existing at the time of the survey.

Details of the sample design, followup procedure, data processing, and estimation are included in appendix I. A copy of the questionnaire and the definitions used are shown in appendix II. Appendix III contains detailed tables by category of personnel.

Hospital Manpower in the United States

Present Employment

In March 1969 there were nearly 3 million persons (2,858,500) employed in hospitals in the United States. Of this number, approximately two-thirds (1,874,200) were employed in professional and technical health occupations. These figures include both full-time and part-time personnel. About eight out of 10 professional and technical health employees in hospitals were reported as working full-time (35 hours or more per week).

Table 1 in appendix III shows the number of persons employed in various occupational categories and service groupings in hospitals. Nursing personnel (registered nurses, licensed practical and vocational nurses, nursing aides, orderlies, attendants, and ward clerks) comprised the bulk of health professional and technical employees in hospitals in 1969, with about seven out of 10 health workers reported in one of the nursing-service categories. About 36 out of every 100 nursing personnel were registered nurses and 16 were licensed practical or vocational nurses.

There were 436,200 persons employed in hospitals in the allied health occupations, accounting for 23 percent of all professional and technical health personnel in hospitals in the United States. Among the allied health occupations, clinical laboratory technologists (44,500) comprised the single largest category. Other categories having at least 10,000 employees for which the appropriate requirement for basic occupational preparation is at least baccalaureate were: hospital administrators (17,200), social workers (15,200), licensed pharmacists (13,600), and dietitians (12,700). Other large categories of allied health manpower were: X-ray technologists-technicians (31,100), surgical aides (23,400), dietary technicians (18,100), and medical record clerks (33,300).

Caution should be exercised in interpreting the figures shown for medical and dental interns and residents and for staff physicians and dentists. The relatively large number of part-time employed staff physicians (18,500) probably represents, in part, errors in reporting and inclusion of some physicians usually considered to be in office-based practice. The figures for full-time staff physicians and dentists do not include Federal physicians and dentists in hospital-based practice outside of the United States.

The proportion of full-time personnel varied greatly among the different categories of personnel (table 2). Full-time employment was defined as employment of 35 hours or more per week. Consequently, some personnel working what the employing hospital considers to be a normal full-time schedule have been reported as part-time employees if the schedule calls for less than 35 hours of work per week. Staff physicians, registered nurses, and speech pathologists and audiologists were the only categories which had a full-time proportion of less than 70 percent. Employment was virtually all full time for hospital administrators (98 percent), medical interns and residents (95 percent), dental assistants (97 percent), and dental laboratory technicians (99 percent). The high proportions of full time for the dental categories are largely attributable to the fact that two-thirds of dental personnel are in Federal hospitals, where the pattern of employment is predominantly full time.

Requirements

Two measures of current requirements for additional health manpower in hospitals were obtained in the survey. The first of these, budgeted positions

vacant, can be interpreted as an indicator of unmet demand by hospitals for health manpower to provide current levels of services. Although a low vacancy rate may be consistent with normal job turnover situation, a high vacancy rate may indicate a shortage in manpower supply for providing demanded services.

Since some hospitals do not budget for positions they feel they will not be able to fill and others do not formally budget for any positions, reported budgeted vacancies may understate the total demand for health manpower in hospitals. In order to obtain an indicator of requirement for health manpower which would correct for these deficiencies and include each hospital's judgement of what is needed without regard to restrictions of availability and finances, hospitals were asked to provide the number of personnel by category needed to provide optimum patient care for the present patient load in addition to present staff and budgeted vacancies. Like all standards of need, the validity of the sum for all hospitals of expressions of additional needs for health manpower by individual hospitals is dependent on the validity of the individual judgements on which they are based.

Budgeted positions vacant. Hospitals were asked to report the numbers of budgeted positions which were vacant on March 28, 1969. Overall less than 100,000 budgeted positions for professional and technical health personnel were reported as being vacant (table 3). This represented a vacancy rate of 5 percent. The highest numbers of vacancies were reported for registered nurses (32,300). Among nonnursing personnel, the greatest numbers of budgeted vacancies were for medical interns and residents (4,100).

Categories with vacancy rates of 10 percent and over were physical therapists (15 percent) and occupational therapists (11 percent). As would be expected, the vacancy rates in service groupings are generally higher for the categories requiring higher levels of educational preparation. Thus, the vacancy rate for registered nurses is more than twice that of nursing aides, orderlies, and attendants; the rates for dietitians, occupational therapists, physical therapists, and X-ray technologists are two or more times greater than the vacancy rates for their assistants.

Positions not in budget. Needs were expressed for about 36,000 professional and technical health personnel to provide optimum patient care in addition to the 93,000 budgeted vacant positions and the 1.7 million filled equivalent full-time positions (table

1). Figures for additional positions not budgeted were distributed among the occupational categories approximately the same as were the figures for budgeted vacancies.

The sum of budgeted vacancies and not budgeted additional personnel needed for optimum patient care gives a measure of the total additional need for health manpower in hospitals. For all hospitals in

the United States this need was 129,200 professional and technical health workers. To put this in perspective, for every 13 professional and technical health workers in hospitals in 1969 one additional worker was reported needed to provide optimum patient care. Additional needs not budgeted contributed significantly to total needs only in the case of staff physicians, social workers, and ward clerks (table 1).

Hospital Manpower by Ownership and Type of Hospital

Present Employment

Tables 4 and 5 present the number of professional and technical personnel by category in hospitals classified by ownership and type of hospital. Nongovernmental ownership includes voluntary nonprofit and proprietary hospitals. Tuberculosis hospitals have been included with long-stay general and special hospitals. Hospitals having an average length of stay of 30 days or more are defined as long-stay hospitals. Figures for psychiatric hospitals do not include those for mental retardation centers.

Of the 1.9 million professional and technical health workers in hospitals, 182,700 were in Federal hospitals, 542,500 in State and local governmental hospitals, and 1,149,000 in nongovernmental hospitals (table 4). Community hospitals employed 1,434,100 professional and technical workers, 75,700 were employed in non-Federal general and special hospitals, and 181,600 in non-Federal psychiatric hospitals (table 5). Clearly, employment of health manpower is concentrated (80 percent) in the 6,500 community hospitals which account for slightly over half of the estimated 1.65 million beds set up and staffed for patient care in the United States in 1969.

As shown in appendix I, the standard errors are especially large for non-Federal psychiatric hospitals. The total professional and technical health personnel reported for such hospitals (181,600) is considerably higher than that obtained from the Inventory of Mental Health Facilities in January 1969, as shown below:

<i>Category of personnel</i>	<i>Total employment</i>
All professional and technical health personnel	125,300
Psychiatrists	2,700
Other physicians	1,900
Psychologists	1,400
Social workers	3,600
Registered nurses	11,500
Licensed practical nurses, aides, attendants, psychiatric technicians ..	88,300
Occupational therapists	1,500
Recreational therapists	1,400
Other professional and technical	13,000

Source: Unpublished data based on reports from 405 of 464 mental hospitals in the Inventory of Mental Health Facilities, January 1969. Biometry Branch, National Institute of Mental Health.

The excess reported in the present survey holds for each category of personnel shown for both surveys, as can be seen by comparing the figures above with those in table 5.

Federal hospitals had the highest proportion of full-time workers, 96 percent (table 2). The proportion in these hospitals was over 90 percent for each category except for speech pathologists and audiologists (76 percent) and trainees (76 percent). The lowest proportion of full-time workers was reported for nongovernmental hospitals (75 percent), and that proportion was largely attributable to the low proportion (64 percent) for registered nurses.

From table 6, it would appear that community hospitals relied more on part-time personnel, especially for nursing services, than other hospitals.

On the other hand, non-Federal long-stay general and special hospitals did not depend nearly as much on part-time staff, and psychiatric hospitals depended almost entirely on full-time staff.

Budgeted Positions Vacant

The proportion of budgeted positions which were vacant ranged from 3 percent in Federal hospitals to 7 percent in hospitals owned by State and local governments (table 7). The overall vacancy rate of 5 percent for hospitals masks what seems to be a severe problem among non-Federal long-stay general and special hospitals in filling vacancies. These hospitals had a vacancy rate of 13 percent (table 8 and figure 1). The problem in these hospitals is particularly acute for nursing personnel, with one out of four budgeted positions for registered and licensed practical nurses reported as being vacant. High vacancy rates in these hospitals were also experienced for occupational therapists (25 percent) and physical therapists (23 percent).

The vacancy rate for occupational therapists and physical therapists exceeded 10 percent for each group of hospitals by ownership and type, except for Federal hospitals. A vacancy rate of 11 percent was experienced for staff physicians among State and local government hospitals. The severest problem of vacant budgeted positions seems to have been among registered and licensed practical nurses in State and local governmental hospitals.

Staffing Patterns

Professional and technical health personnel constituted about 65 percent of total hospital personnel for each group of hospitals by ownership. Among non-Federal hospitals, the only deviation from this average was for long-stay general and special hospitals where the proportion was 60 percent.

Nursing personnel accounted for half of the total professional and technical health personnel in Federal hospitals and almost three-fourths in hospitals under other ownerships (table 9). In community hospitals nursing personnel accounted for 70 percent of professional and technical personnel; in non-Federal long-stay hospitals the figure was 75 percent (table 10). Community hospitals had the largest proportion of clinical laboratory service personnel (6 percent). As would be expected, psychiatric hospitals had virtually no laboratory service personnel. Personnel

providing therapeutic services in non-Federal long-stay hospitals greatly exceeded those in short-stay hospitals.

Tables 11 and 12 show the percent of personnel by category for selected hospital services. Many of the differences among hospitals may be due in part to misclassification of personnel by hospitals and possibly the reliance on position titles which may not accurately reflect levels of performance or function.

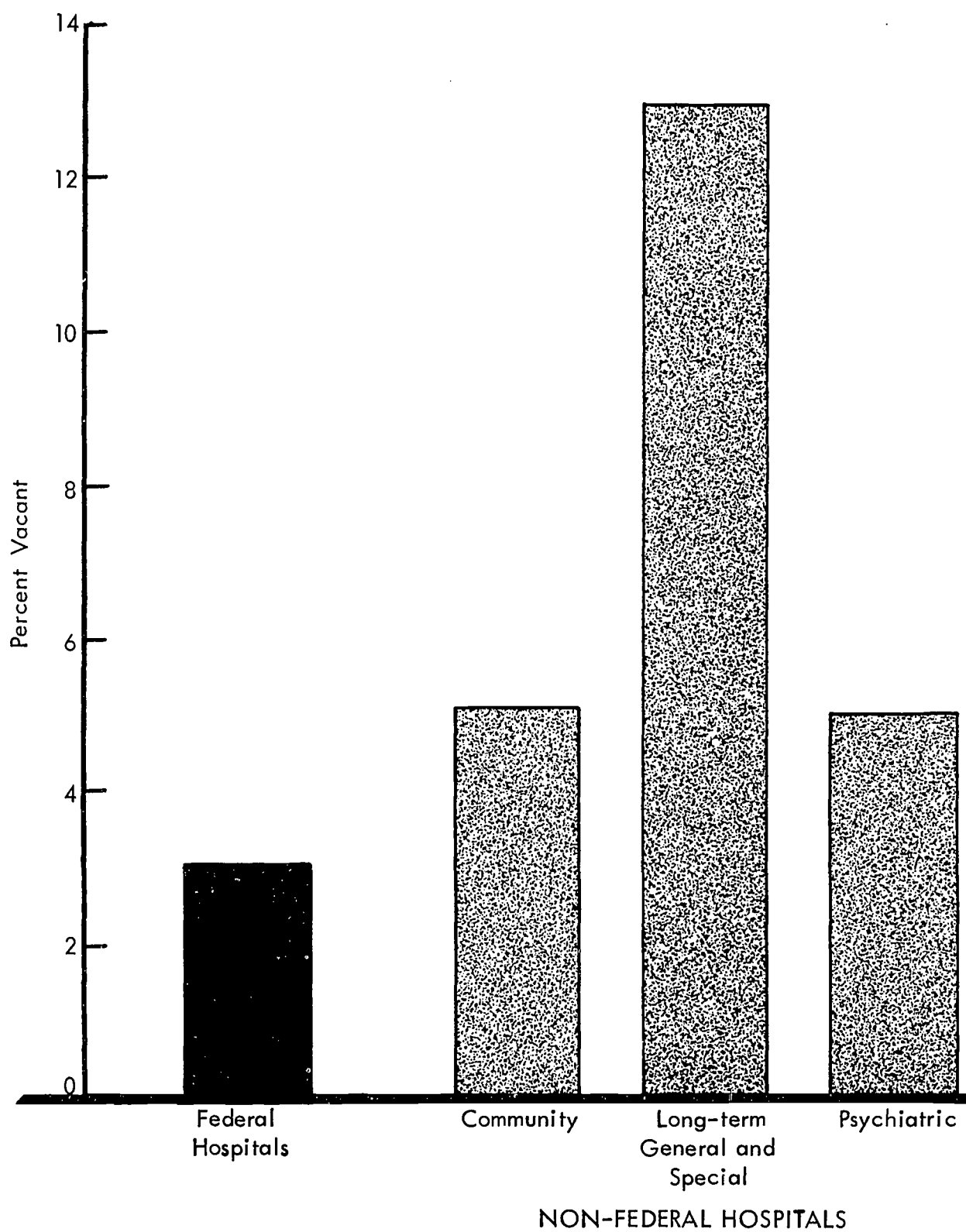
As reported, however, it would seem that Federal hospitals had lower proportions of clinical laboratory technologists, medical record librarians, practical nurses, and licensed pharmacists than hospitals under other ownerships. On the other hand, dietitians comprised a larger proportion of dietary service personnel in Federal hospitals than was reported for other hospitals (table 11).

For non-Federal hospitals, there was considerable variation among the types of hospital in the proportions of the various services provided by different categories of personnel. In psychiatric hospitals considerably lower proportions of dietary, medical record, and nursing services were provided by the most highly trained personnel than in other types of hospitals. In contrast the proportion of licensed pharmacists was highest in psychiatric hospitals (table 12).

The mix of registered nurses, licensed practical and vocational nurses, and other nursing personnel varied considerably among non-Federal hospitals by ownership and type. Among these hospitals a strong relationship between nurse staffing and budgeted vacant positions can be observed in table 13 which provides some evidence to support the contention that lower-level personnel are being substituted for higher-level personnel in shortage situations. State and local governmental hospitals had high vacancy rates for registered nurses and licensed practical nurses. They also had lower proportions of total nursing staff in these categories than nongovernmental hospitals which had lower than average vacancy rates for registered nurses and licensed practical nurses. Similarly, both long-stay general and special and psychiatric hospitals had high vacancy rates and lower proportions of total nursing staff in the registered nurse and licensed practical nurse categories than community hospitals, which had comparably lower vacancy rates for the two categories.

Patterns of staffing are best observed when total staff is standardized or put on a unit basis. For this report the unit chosen was 100 beds. Tables 14 and

FIGURE 1.—Percent of budgeted positions for professional and technical health personnel vacant in hospitals in the United States, by type of hospital: 1969



15 show average numbers of professional and technical health personnel for every 100 beds in hospitals in the United States. The average staffing of professional and technical health personnel per 100 beds in nongovernmental hospitals was roughly twice as high as that in either Federal or State and local governmental hospitals, 164 staff members as compared to 83 and 75, respectively (table 14).

The differences in relative staff size between governmental and nongovernmental hospitals are largely explained by the type of hospitals under each form of ownership. Nongovernmental hospitals are predominantly short stay. Long-stay general and special hospitals and psychiatric hospitals are principally State and local government owned. Table 15 shows that there are four times as many professional and technical health personnel per 100 beds in community hospitals as in psychiatric hospitals and $2\frac{1}{2}$ times as many as in long-term general and special hospitals. (See also figure 2.)

Psychiatric hospitals had only 41 professional and technical health staff members per 100 beds, 23 of whom were nursing aides, orderlies, or attendants. On the average there were about three registered nurses,

three licensed practical or vocational nurses, two staff physicians or psychiatrists and two social workers and assistants for every 100 beds in psychiatric hospitals.

In community hospitals, the number of registered nurses per 100 beds, 46, was larger than total professional and technical staff per 100 beds in psychiatric hospitals. In addition to the registered nurses in community hospitals, there were 20 licensed practical nurses, 44 nursing aides, orderlies and attendants, and six ward clerks per 100 beds. There were also five medical interns and residents, five clinical laboratory technologists, three X-ray technologists-technicians, and three dietitians or dietary technicians for every 100 beds in community hospitals (table 15).

There were seven staff physicians per 100 beds in Federal hospitals, but only one dietitian. Federal hospitals had the only sizable dental services staff with an average of four staff members providing dental service out of the total staff of 83 per 100 beds (table 14).

One of the important factors in determining staffing patterns is size of hospital. Data for community hospitals by bed size are included in a later section of this report.

Community Hospital Manpower by Geographic Region

Present Employment

Of the 1.4 million professional and technical health personnel employed in community hospitals in 1969, the largest number (438,500) were in the North Central region (table 16). The distribution of health manpower in hospitals by region corresponds to the distribution of total population except for the South. The South is the most populous region but ranked second in health manpower employment, with 395,200 employed.

The proportion of full-time workers was relatively constant across regions, with the South having the highest proportion, 84 percent, and the North Central region having the lowest, 73 percent (table 17). As was noted previously, the proportion of full-time workers among nursing personnel largely determines the overall proportions. The proportion of full-time nursing personnel in the South was above 80 percent and attained nearly 90 percent for all nursing-service categories except registered nurses.

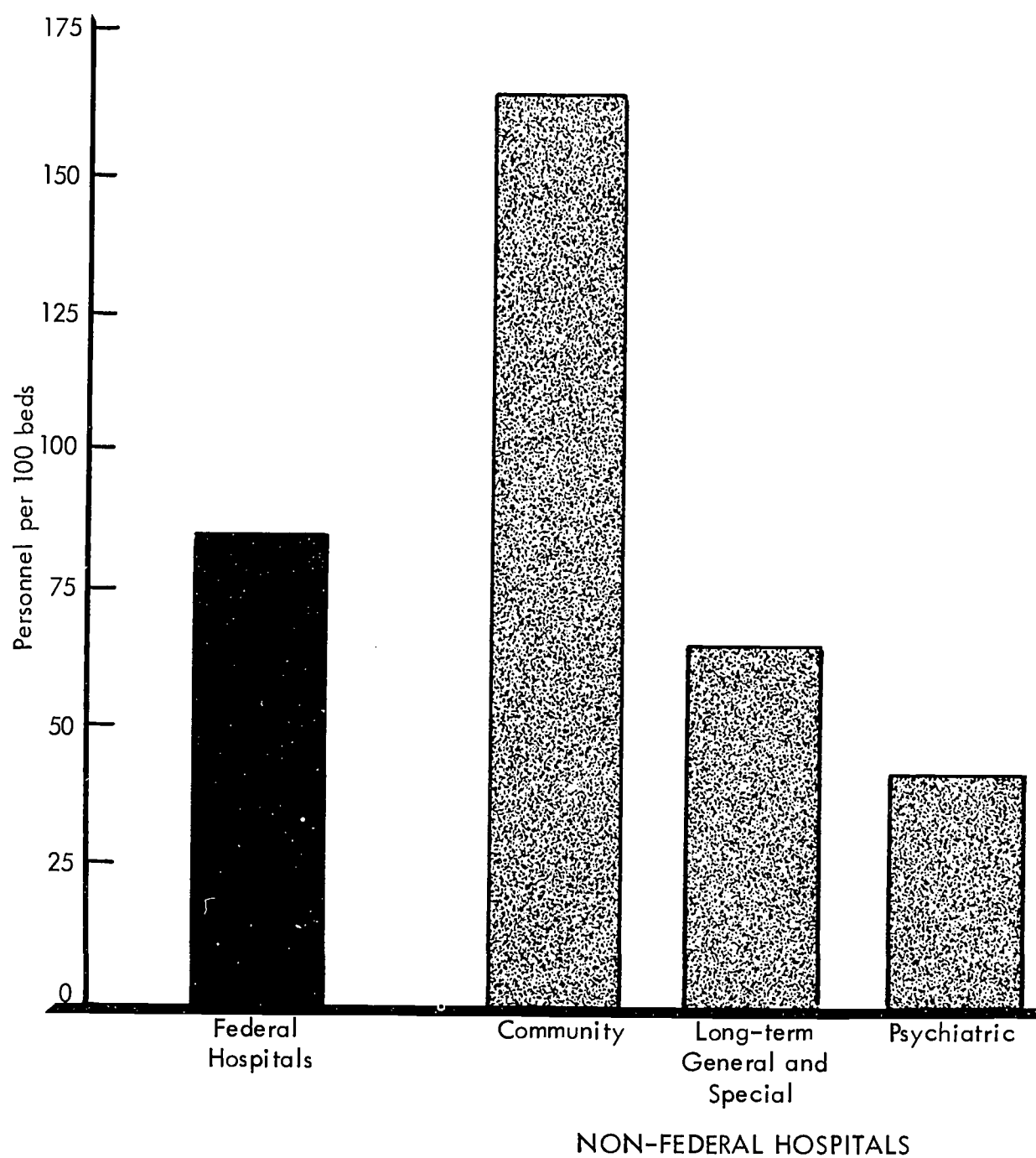
Budgeted Positions Vacant

Although the proportion of budgeted positions which were vacant varied from 4.2 to 5.5 percent among the regions for total professional and technical health manpower, the West had significantly lower vacancy rates than other regions for registered nurses and for licensed practical nurses (table 18). All regions showed vacancy rates for occupational therapists of over 10 percent, with the Northeast having the highest rate, 21 percent. The vacancy rate for registered nurses in the South (9 percent) was almost twice as high as that for the West.

Staffing Patterns

Earlier, it was pointed out that health manpower employment in community hospitals in the South was low relative to total population. This factor, combined with the largest number of beds for any region, produces a low number of professional and technical

FIGURE 2.—Average number of professional and technical health personnel per 100 beds in hospitals in the United States, by type of hospital: 1969



personnel per 100 beds in the South, 157 as compared to an average for the regions of 165 (table 19).

Among the regions, nursing personnel accounted for 68 percent of all professional and technical health personnel in the Northeast and 72 percent in the North Central and West regions. The greatest difference among the regions was for physicians which accounted for 3 percent of professional and technical health personnel in the West and 7 percent in the Northeast (table 20).

Due to sampling errors and the lack of any sharp patterns, it is difficult to draw firm conclusions regarding staffing in the four regions. In general, the proportion of various services provided by the more highly trained personnel is highest in the West and lowest in the South. For nursing service, however, the highest proportion of registered nurses was in the Northeast (table 21).

Community Hospital Manpower by Size of Hospital

Present Employment

Table 22 shows the numbers of each category of professional and technical health personnel in community hospitals, according to the bed-size of the hospitals. The bed-size is based on the number of adult and pediatric beds set up and staffed for inpatient use on March 28, 1969.

Health manpower in hospitals was largely concentrated in the larger hospitals, with 890,800, or over 60 percent of all professional and technical health personnel in community hospitals employed in hospitals having 200 or more beds. When nursing personnel are excluded, the concentration is even more evident. About 70 percent, or 297,000, of the 430,100 nonnursing personnel were employed in community hospitals of 200 and more beds. Ninety percent of the 75,000 medical interns and residents and staff physicians were located in these large hospitals.

The proportion of full-time workers increases with bed-size, from 71 percent for community hospitals of less than 100 beds to 85 percent for hospitals of 500 and more beds. The increase with bed-size is generally present for individual categories. Although the proportion of full-time registered nurses and licensed practical nurses is highest for hospitals of 500 and more beds, the proportion is fairly constant for smaller hospitals (table 23).

Budgeted Positions Vacant

The proportion of budgeted professional and technical positions which were vacant increased with size of community hospital, with hospitals of 500 and

more beds having the highest rate, 6.6 percent (table 24). The lower rates for small hospitals are largely a reflection that many of these hospitals do not formally budget positions. Nearly a third of the hospitals with less than 100 beds did not report on their budgeted positions vacant, while fewer than 10 percent of hospitals with 500 and more beds failed to report this information.

The largest proportion of budgeted positions which were vacant occurred for medical interns and residents (32 percent) in hospitals of 100 to 199 beds. Vacancies were also high in this size group for social workers and their assistants.

The vacancy rate of 9 percent for registered and practical nurses in hospitals of 500 or more beds is above the level which may be attributable to normal turnover. Since these nurses are large groups, these high rates of vacancies must have an effect on services provided in the large hospitals. The vacancy rates in hospitals of 500 or more beds are over 10 percent for medical record librarians, occupational and physical therapists, and nuclear medical and radiation therapy technologists-technicians, categories for which several years of educational preparation are a requirement.

Staffing Patterns

The staffing patterns for community hospitals are remarkably consistent across bed-size classes of hospitals. Observed differences are probably attributable to sampling errors in many instances (tables 25 and 26).

The average number of professional and technical health personnel per 100 beds ranged from 144 for hospitals of less than 100 beds to 177 for hospitals of 200 to 499 beds. The average staffing of nursing personnel per 100 beds varied across bed-size classes of hospitals between 107 and 122 per 100 beds (table 27).

Tables 28 and 29 show summary data on professional and technical health personnel employed in community hospitals by geographic region and bed size of hospital. In addition to total personnel, figures are included for physicians, nursing personnel, and other professional and technical personnel. The numbers of personnel are shown in table 28 and the rate per 100 beds in table 29 and figure 3.

Patterns of Change in Hospital Manpower

Data on levels of health manpower employment and requirements in hospitals registered by the American Hospital Association are now available for two time periods, April 1966 and March 28, 1969. Although the data for both surveys are based on responses by individual hospitals to similar mail questionnaires, there are sufficient differences in methods of collection, format of the questionnaires, and definitions of personnel categories to limit the number of comparisons that can be made and to require caution in interpreting differences between the two periods.

Unlike the 1969 survey which was based on a probability sample, the 1966 Survey of Manpower Resources in Hospitals was an attempt to obtain data on health manpower from all hospitals registered by the American Hospital Association. Reports were received from 76 percent of the 6,993 hospitals to which questionnaires were mailed, representing an estimated 80 percent of all professional and technical personnel in these hospitals. Employment and requirement figures were estimated for all A.H.A.-registered hospitals from data obtained from reporting hospitals. The resulting estimated figures for employment in April 1966 are probably reasonably accurate, whereas those for additional needs may be significantly affected by the bias of attributing the needs of reporting hospitals to hospitals which did not report.

Since the 1969 data are based on a sample of hospitals instead of on all hospitals, small differences may be attributable to sampling error. In addition, minor changes in the questionnaire and in the wording of definitions for some categories of personnel may have caused differences in the numbers which would not have occurred if identical definitions and questionnaires had been used in both years.

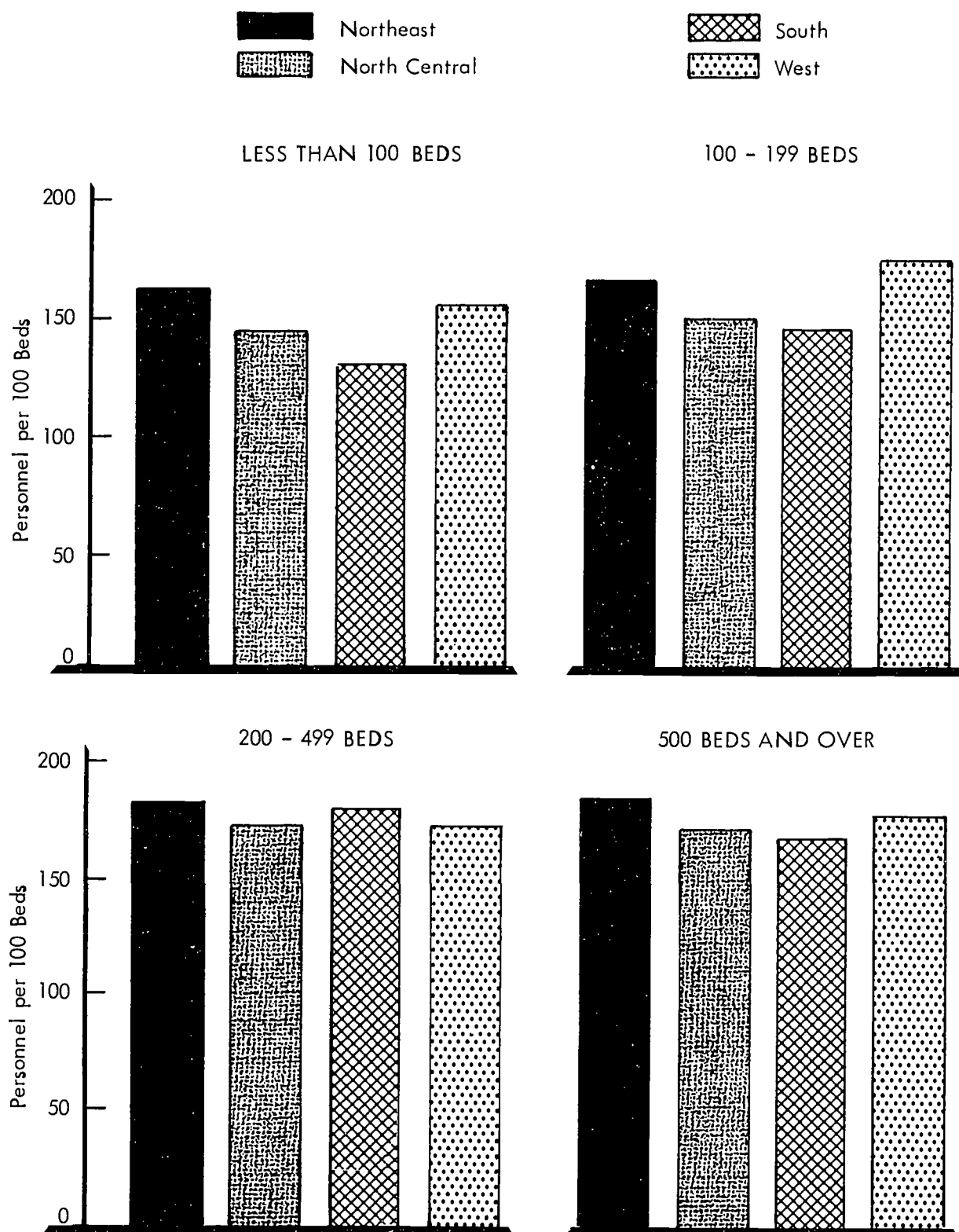
The statistics contained in this report up to now have been estimates for all hospitals in the United States, an estimated 7,930 at the time of the survey in 1969. The statistics contained in this section, however, refer only to hospitals registered by the American Hospital Association. In 1966 there were 6,993 A.H.A.-registered hospitals and in 1969, 7,090 (estimated from the sample). The Guide Issue of *Hospitals* reports 7,144 A.H.A.-registered hospitals in 1969. (3)

Employment

While indicators of hospital utilization such as average daily census and average length of stay remained relatively constant or showed only small increases between 1966 and 1969, total hospital personnel increased sharply in the same period. According to data from annual surveys conducted by the American Hospital Association, total personnel grew from 1,952,000 on September 30, 1965, to 2,309,000 on September 30, 1968, an increase of 357,000 or about 18 percent. By September 30, 1969, the number was 2,426,000. (3) In the 3-year period, April 1966 to March 1969, employment of professional and technical health personnel (as estimated from the two surveys) grew from 1,332,000 to 1,595,000, an increase of 263,000 or about 20 percent (figure 4).

A comparison of the levels of employment reported for nursing personnel (registered nurses, licensed practical and vocational nurses, nursing aides, orderlies, and attendants) shows a growth of 164,400 or about 16 percent in the 3-year period, 1966-69. Some caution needs to be exercised in interpreting this figure since the treatment of ward clerks differed in the two surveys. Although ward clerks should have been

FIGURE 3.—Average number of professional and technical health personnel per 100 beds in community hospitals in the United States, by bed size of hospital and geographic region: 1969



reported in the "other professional and technical" category in 1966, some may have been reported together with nursing aides, orderlies, and attendants. The size of the ward-clerk category creates uncertainty in interpreting patterns in the relationship of nursing personnel and other professional and technical health personnel to total health manpower in hospitals.

Other professional and technical health personnel in hospitals increased at a greater rate than nursing personnel between 1966 and 1969. Employment of 328,600 in 1966 grew to 426,600 in 1969, an increase of nearly 100,000 or about 30 percent (figure 4).

Requirements

Accompanying the large growth in health manpower employment over the 3-year period was a substantial decrease in additional health manpower needs reported. Additional needs for professional and technical health manpower—budgeted vacant positions and positions not budgeted but needed to provide optimum care—totaled 257,200 in 1966 compared with 110,000 in 1969 (figure 5). It is interesting to note that the growth in employment, 261,000, approximates the size of needs for health manpower expressed in 1966, 257,200. Residual additional needs in 1969 probably reflect the small increases in patient-load over the 3-year period and shifts in the patient population attributable to Medicare.

Although both budgeted vacant positions and positions needed but not budgeted decreased between 1966 and 1969, the decrease was greatest for positions needed but not budgeted. In 1966, budgeted vacant positions constituted about half of all additional needs. By 1969, budgeted vacancies constituted three-fourths of all additional needs.

The change described for total health manpower needs in hospitals existed also for nursing personnel and other professional and technical health manpower. Additional needs for nursing personnel dropped from about 190,000 in 1966 to 80,000 in 1969, while needs for other health manpower dropped from 67,000 to 29,000 in the same period (figure 5).

Selected Personnel Categories

As mentioned earlier, differences in the questionnaires and definitions used in the 1966 and 1969 surveys, even though minor in most instances, limit the comparisons that can be made for separate categories of personnel between 1966 and 1969 with some assurance of accuracy.

Table 30 shows the total employment in 1966 and 1969 for selected categories of personnel according to the questionnaire line description and accompanying definition for the category.

Large increases can be seen between 1966 and 1969 in many categories. The increases were particularly large for cytotechnologists-technicians, electrocardiographic technicians, and social work assistants and aides.

For a few categories either only marginal increases are evident or there were decreases. Included among these are medical record librarians, occupational therapists, physical therapists, and nursing aides, orderlies, and attendants.

An indication of the caution which must be exercised in comparing individual categories of personnel between the two surveys is given by the apparent drop in the number of medical technologists (from 54,500 to 42,400). In the 1966 survey three groups of medical technologists were reported—ASCP registered, other registration or certification, and other medical technologists (technicians). No estimates were made of the number of each of these groups in all registered hospitals in 1966. However, in reporting hospitals about 65 percent were registered. In the 1969 survey, the instructions were to include as clinical laboratory technologists only college graduates (see appendix II). Medical technologists who were not college graduates were reported with "other clinical laboratory personnel." A recent report (4) designates half of all clinical laboratory staff (medical technologists, laboratory assistants, and histologic technicians) as baccalaureate level. A comparison of the total numbers of laboratory personnel reported for the two surveys shows an increase from 74,600 in 1966 to 91,300 in 1969, an increase of 22 percent (table 30).

FIGURE 4.—Number of professional and technical health personnel employed in A.H.A.-registered hospitals in the United States: 1966 and 1969

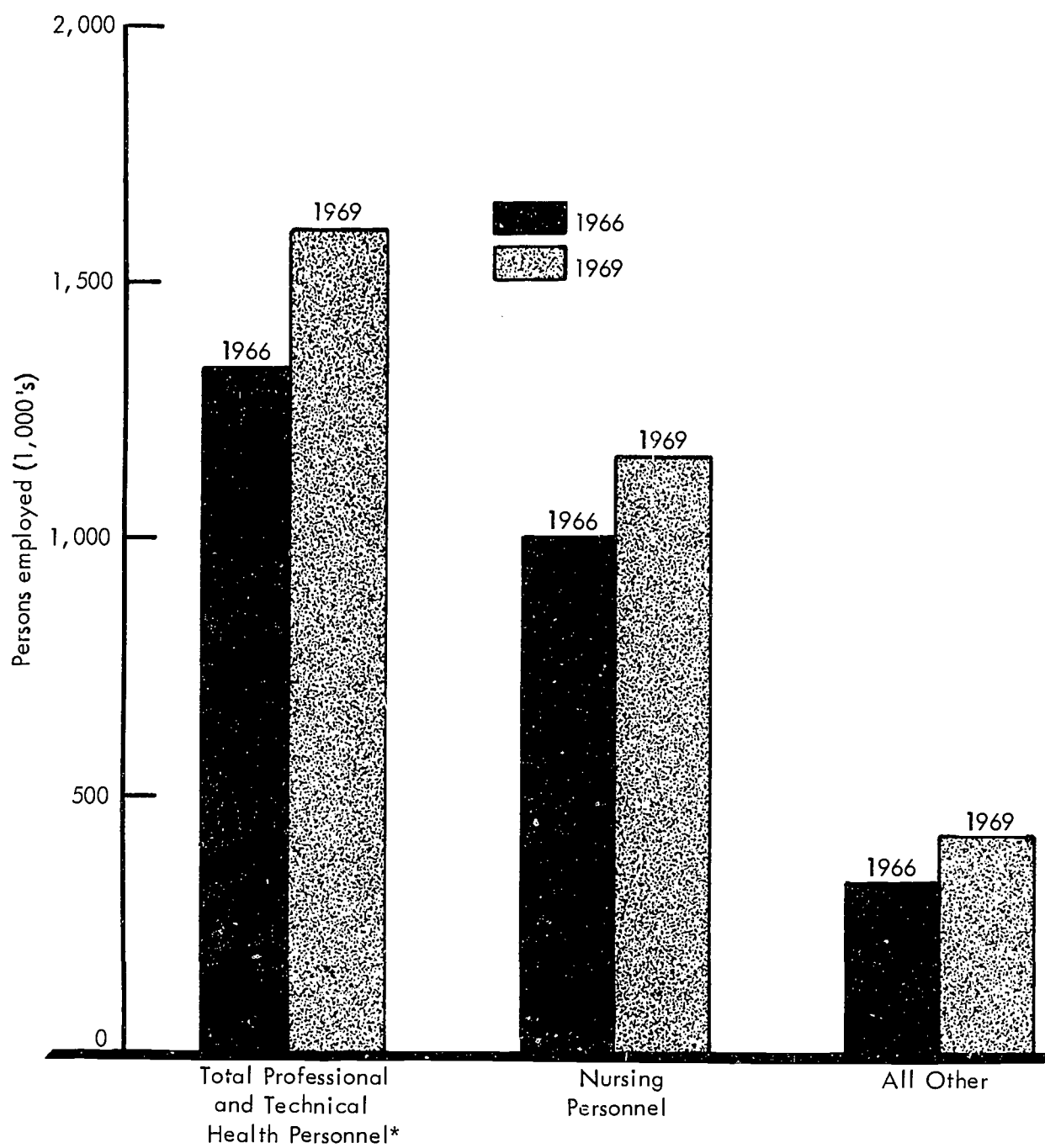
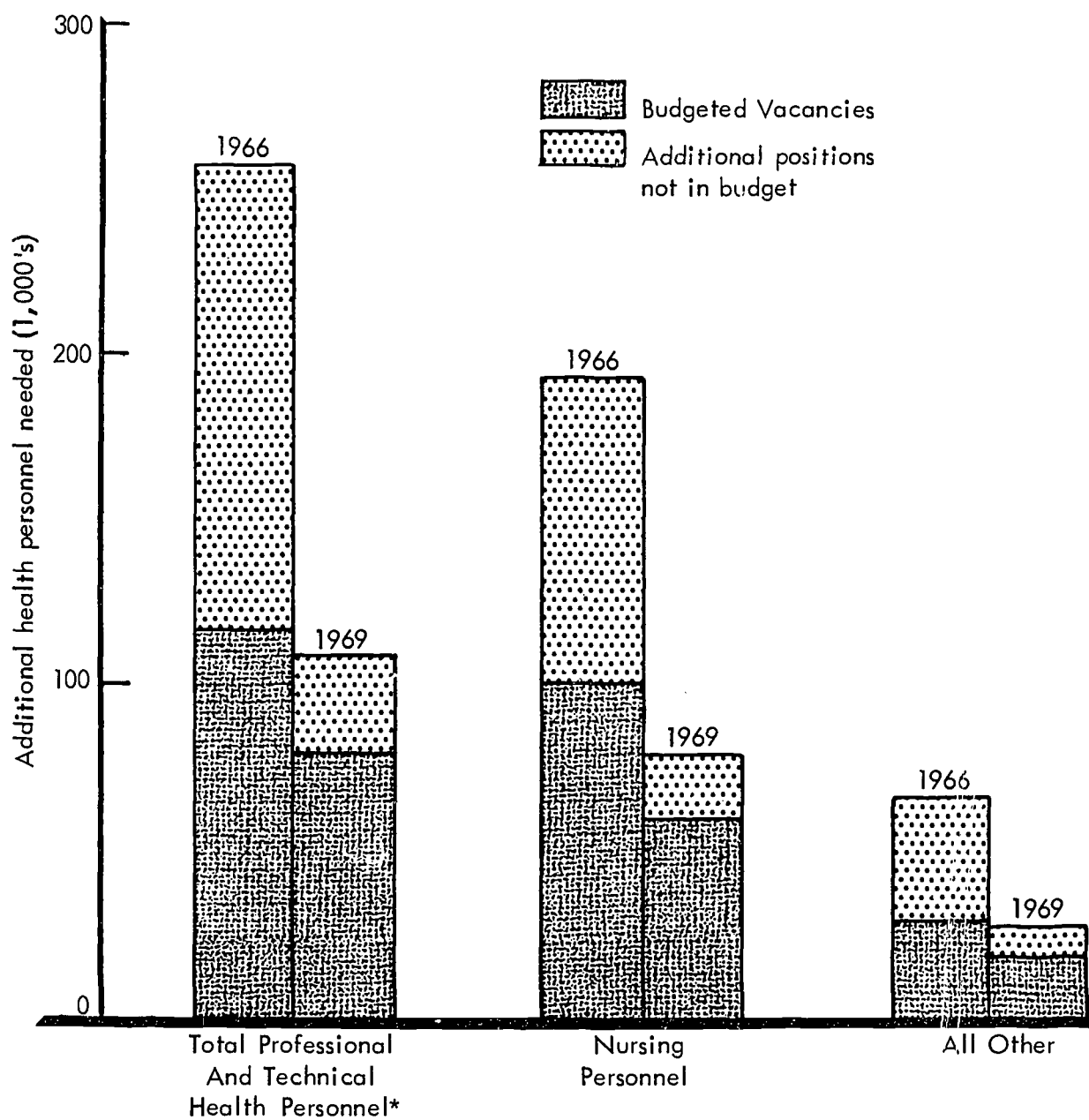


FIGURE 5.—Number of additional professional and technical health personnel needed to provide optimum patient care in A.H.A.-registered hospitals in the United States: 1966 and 1969



References

- 1 Manpower Resources in Hospitals—1966. Chicago, American Hospital Association, 1967.
- 2 Development and Maintenance of a National Inventory of Hospitals and Institutions. Public Health Service Pub. No. 1000—Series 1, No. 3. Washington, U.S. Government Printing Office, 1965.
- 3 Guide Issue of *Hospitals*, vol. 44, Aug. 1, 1970, Part 2.
- 4 Pennell, Maryland Y., and Hoover, David B. Health Manpower Source Book 21. Allied Health Manpower Supply and Requirements: 1950–80. Public Health Service Pub. No. 263, Section 21. Washington, U.S. Government Printing Office, 1970.

APPENDIX I

Technical Notes on Methods

Survey Design

Scope of the survey. The scope of the Hospital Manpower Survey encompasses all hospitals located in the 50 States and the District of Columbia.

Sampling frame. The sampling frame for hospitals was the Master Facility Inventory of Hospitals and Institutions (MFI) of 1967 in which 8,147 hospitals were listed. The distribution of hospitals in the MFI and in the sample by bed-size, length-of-stay, and region are shown in table A at the end of this appendix.

Sample design. A probability sample of 1,062 hospitals was selected from the MFI according to a single-stage stratified random sampling technique. The hospitals in the MFI were first stratified into nine bed-size and length-of-stay strata in each of four geographic regions. Hospitals within each of the 36 strata were then ordered by State, type of ownership within State, and then by bed-size within State and type of ownership. A systematic random sample of hospitals was next selected from each of the 36 strata according to near optimal sampling rates determined from manpower data collected in the Survey of Manpower Resources in Hospitals in 1966. The sampling rates are shown in table A.

Data collection. Questionnaires were mailed to the 1,062 selected hospitals on April 1, 1969. Of these questionnaires, 16 hospitals were found to be out-of-business at the time of the survey and 15 to be out-of-scope of the survey, either because they had less than six beds or because of failure to meet the definition of a hospital in some other respect.

Nonrespondents were sent two additional mailings, one on April 21, 1969, and the other on May 5, 1969. The mailing on May 5 was by certified mail. As a result of the three mailings, 892 completed questionnaires were returned for a response rate of 87 percent. Return rates for the three mailings were: April 1, 40 percent; April 21, 41 percent; and May 5, 71 percent of the mailing on that date. Personal visits by field agents of the Bureau of the Census, conducted in June, gained the cooperation of an additional 106 hospitals and raised the response to 998 hospitals or 97 percent.

The reference date for reporting personnel, March 28, 1969, was retained throughout the collection period.

Data processing. Each returned questionnaire was edited and, as necessary, problems were referred to the hospitals by mail or telephone for clarification and correction. Cards were punched, 100-percent verified, and converted to magnetic tape. A computer edit-run identified reported figures exceeding expected limits. Those hospitals were queried by telephone.

Estimation. The data in each of the 36 strata (region by bed-size and length of stay) were inflated by the reciprocals of the probability of sample selection and then adjusted for hospital nonresponse. The final step was an adjustment applied to sample hospitals classified into nine strata according to their bed-size and length-of-stay character in the MFI of 1968. The final adjustment factor is:

$$\frac{N_i, 1968}{N_i, 1967}$$

Where, $N_i, 1968$ = number of hospitals in MFI of 1968 classified into nine bed-size and length-of-stay strata according to MFI of 1968 characteristics.

and $N_i, 1967^*$ = number of hospitals in MFI of 1967 also in MFI of 1968, classified into nine bed-size and length-of-stay strata according to MFI of 1968 characteristics.

On the basis of the survey returns and the adjustments just mentioned, an estimate was made of the number of hospitals and hospital beds in the United States in 1969.

General Qualifications

Completeness of data. No responses or "not available" responses were reported for manpower needs

Table A. *Distribution of hospitals in the universe and selected for sample, by bed size and type of hospital and geographic region*

Bed size and type of hospital	Sampling rate	All regions	Northeast	North Central	South	West
All bed sizes and types:						
Universe ¹		8,147	1,427	2,323	2,871	1,526
Sample.....		1,062	251	313	327	171
1. 6-49 beds, short stay:	1 in 20					
Universe.....		2,509	155	641	1,168	545
Sample.....		125	8	32	58	27
2. 50-99 beds, short stay:	1 in 12					
Universe.....		1,658	238	471	616	333
Sample.....		137	20	39	51	27
3. 100-199 beds, short stay:	1 in 8					
Universe.....		1,285	275	399	416	195
Sample.....		162	35	50	52	25
4. 200-499 beds, short stay:	1 in 4					
Universe.....		1,158	343	345	298	172
Sample.....		290	86	86	75	43
5. 500 and more beds, short stay:	All					
Universe.....		229	69	72	61	27
Sample.....		229	69	72	61	27
6. 6-99 beds, long stay ² :	1 in 20					
Universe.....		557	124	169	118	146
Sample.....		29	6	9	6	8
7. 100-499 beds, long stay ² :	1 in 12					
Universe.....		411	114	134	101	62
Sample.....		34	9	11	8	6
8. 500 and more beds, psychiatric:	1 in 8					
Universe.....		236	75	70	60	31
Sample.....		30	9	9	8	4
9. 500 and more beds, long stay general and special:	1 in 4					
Universe.....		104	34	22	33	15
Sample.....		26	9	5	8	4

¹ Master Facility Inventory of 1967.

² Includes general, special, and psychiatric hospitals.

in all occupational categories for 186 of the 998 sample hospitals which returned otherwise completed questionnaires. These responses may represent no manpower needs, manpower needs of unknown size, or refusals to provide the figures. These responses are treated as "zero" responses in this report, as are "not available" responses and blanks for only some of the occupational categories. A "blank" entry for full-time and part-time employment in an occupational category was also interpreted as a "zero" response.

Rounding of numbers. Estimates relating to employment and manpower needs in hospitals have been rounded to the nearest hundred. For this reason detailed figures within tables may not add to totals which have been rounded independently. Percentages and rates were calculated on the basis of original, unrounded figures and may not agree exactly with rates and percentages calculated from rounded data.

Reliability of Estimates

Since the estimates given in the report are based on a sample of hospitals, they may differ somewhat from the results that would have been obtained if all hospitals in the United States had been surveyed using the same questionnaire and survey procedures. As in any survey, the results are also subject to measurement errors, errors that would have occurred even if all hospitals had been surveyed.

The standard error is primarily a measure of sampling variability, that is, the variations that might occur by chance because only a sample of the universe is surveyed. As calculated for this report, the sampling error does not reflect any part of the variation which

arises in the measurement process nor any biases in the data. The chances are about 68 out of 100 that an estimate from the sample would differ from the comparable statistic from a survey of all hospitals by less than the standard error. The chances are about 95 out of 100 that the difference would be less than twice the standard error and about 99 out of 100 that it would be less than 2½ times as large.

In order to derive standard errors which would be applicable to a wide variety of statistics on health manpower in hospitals and which could be prepared at a moderate cost, a number of approximations were required. As a result, the tables of standard errors shown should be interpreted as providing estimates of approximate standard errors, rather than as the precise standard errors for any specific statistic.

The following rules will enable the reader to determine the approximate reliability of statistics contained in this report from the 1969 survey:

1. *Estimates of numbers of personnel*—Approximate standard errors of numbers of personnel and personnel positions are obtained from the appropriate columns of table B.

Example: There were an estimated 27,300 X-ray technologists-technicians employed in community hospitals in 1969. Since the standard error for this estimate is not shown in table B, it is necessary to interpolate between the standard error for 20,000 which is 600 and the standard error for 40,000 which is 1,000. Such interpolation gives 744 as the standard error for 27,200 X-ray technologists-technicians.

2. *Estimates of percentages*—Approximate standard errors of the percentages of full-time positions and budgeted vacant positions can be obtained by use of the approximate relationship:

$$\text{s.e. of } p \left(\frac{X'}{Y'} \times 100\% \right) = \frac{X}{Y} \sqrt{\frac{(\text{s.e. of } X)^2}{(X)^2} + \frac{(\text{s.e. of } Y)^2}{(Y)^2}} \times 100\%$$

where the standard error of the numerator (s.e. of X') and the standard error of the denominator (s.e. of Y') on which the percent is based are obtained from table B.

Example: The proportion of budgeted positions for licensed pharmacists in hospitals in the United States which were vacant was 4.9 percent. The stand-

ard error for the numerator of the percent (600 vacant positions) is, from table B, 100. The standard error for the denominator (12,300 budgeted positions) is, interpolating from table B, 465. The approximate standard error of the 4.9 percent vacancy figure is:

$$\begin{aligned}
 \text{s.e. of } p (=4.9\%) &= \frac{600}{12,300} \sqrt{\frac{(100)^2}{(600)^2} - \frac{(465)^2}{(12,300)^2}} \times 100\% \\
 &= 0.049 \sqrt{0.0277 - 0.0014} \times 100\% \\
 &= 0.8\%
 \end{aligned}$$

Table B. *Standard errors of estimates of numbers of personnel*

Size of estimate	All hospitals	Community hospitals					Non-Federal long stay hospitals	
		All sizes	Less than 100 beds	100-199 beds	200-499 beds	500 beds and over	General and special	Psychiatric
500	100	100	120	120	100	0	150	200
1,000	100	100	140	140	120	0	250	300
2,000	140	140	200	200	160	0	400	500
5,000	200	200	350	350	300	0	800	1,000
10,000	350	350	650	650	500	0	1,200	1,500
15,000	500	500	900	900	700	0	1,500	2,200
20,000	600	600	1,200	1,200	900	0	2,200	3,000
40,000	1,000	1,000	2,200	2,200	1,500	0	4,000	6,000
100,000	2,000	2,000	5,000	5,000	3,000	0	.....	13,000
200,000	3,000	3,000	10,000	10,000	.....	0	.....	.....
400,000	5,000	5,000	.....	.....	.....	0	.....	.....
1,000,000	10,000	10,000	.....	.....	.....	.....	.....	.....

Appendix II

Definitions of Terms and Questionnaire Items

General Definitions

Hospital. In this survey an establishment is a hospital if it meets all of the following conditions:

1. It maintains at least six beds for use by inpatients.
2. It is licensed as a hospital by the State in which it is located if the State has a hospital licensure law.
3. It provides inpatient medical care under the supervision of a duly licensed doctor of medicine or doctor of osteopathy.
4. It provides nursing service 24 hours a day under the supervision of a registered nurse.
5. It maintains medical records for each patient admitted and for newborn infants.

Short-stay hospital. A short-stay hospital is one in which the average stay is under 30 days.

Long-stay hospital. A long-stay hospital is one in which the average stay is 30 days or more.

Community hospital. A non-Federal short-stay general or special hospital (excluding psychiatric and tuberculosis).

Hospital bed size. Hospital bed size is a classification of hospitals according to the number of adult and pediatric beds set up and staffed for inpatients on March 28, 1969. Not included are cribs and bassinets maintained for use by newborn infants.

Geographic region. For the purpose of classifying hospitals by geographic area, the States are grouped into four regions. They correspond to those used by the Bureau of the Census and are as follows:

Northeast	Connecticut, Maine, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont
North Central	Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, North Dakota, Ohio, South Dakota
South	Alabama, Arkansas, Delaware, District of Columbia, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, North Carolina, Oklahoma, South Carolina, Tennessee, Texas, Virginia, West Virginia
West	Alaska, Arizona, California, Colorado, Hawaii, Idaho, Montana, Nevada, New Mexico, Oregon, Utah, Washington, Wyoming

Definitions of Manpower Categories

Allied health occupations. Include all categories of professional and technical health personnel shown on survey questionnaire except: medical interns and residents, other physicians, dental interns and residents, other dentists, nursing service personnel, and trainees.

The definitions of each category which follow are produced exactly as they appeared on the definition sheet which accompanied each mailed questionnaire.

DEFINITION SHEET

PHYSICIANS

- 1.0 **Medical Interns and Residents**—Physicians in hospital training programs who are paid directly by the hospital.
- 1.1 **Other Physicians**—Physicians paid directly by the hospital. Exclude courtesy and attending staff.

DENTAL SERVICES

- 2.0 Dental Interns and Residents—Dentists in hospital training programs who are paid directly by the hospital.
- 2.1 Other Dentists—Dentists paid directly by the hospital. Exclude courtesy and attending staff.
- 2.2 Dental Hygienists—Graduates of an accredited School of Dental Hygiene currently licensed or eligible for licensure to practice, who perform oral prophylaxis and carry out other activities under the direction of a dentist.
- 2.3 Dental Assistants—Persons who assist the dentist at chairside, including such activities as mixing filling materials, cleaning and sterilizing instruments, exposing and processing X-ray films.
- 2.4 Dental Laboratory Technicians—Persons who work under the direction of a dentist to construct dentures and other dental restorations and appliances.

CLINICAL LABORATORY SERVICES

- 3.0 Clinical Laboratory Scientists—Persons with a graduate degree in one of the natural sciences who perform various laboratory tests. Includes: Bioanalyst, cytologist, embryologists, histologist, clinical chemist, microbiologist.
- 3.1 Clinical Laboratory Technologists—College graduates who perform various chemical, microscopic bacteriologic, and related tests. Alternate titles: Medical laboratory technologist, medical technologist, blood bank technologist, chemistry technologist, hematology technologist, microbiology technologist.
- 3.2 Cytotechnologists—Technicians specially trained to search for abnormalities in human cells.
- 3.3 Histologic Technicians and Aides—Persons specially trained in cutting and staining body tissues for microscopic examination.
- 3.4 Other Clinical Laboratory Personnel—Other skilled laboratory personnel not reported above. Includes medical technologists (not college graduates), technicians, assistants, and aides.

DIETARY SERVICES

- 4.0 Dietitians—Persons with at least baccalaureate-level preparation in foods and nutrition or in institutional management.
- 4.1 Dietary Technicians—Persons not in 4.0 who are responsible for food service planning and administration, or who assist in planning menus and help supervise the preparation and service of meals. Includes food service managers, technicians and assistants.

MEDICAL RECORD SERVICES

- 5.0 Medical Record Librarians—Persons responsible for planning, organizing, supervising, and maintaining systems of medical records.
- 5.1 Medical Record Technicians—Persons who assist medical record librarians in carrying out technical work.
- 5.2 Medical Record Clerks—Persons who perform clerical and typing operations which require knowledge of medical records systems.

NURSING SERVICES

- 6.0 Registered Nurses—Graduates of an approved school of nursing who are currently licensed or eligible for licensure to practice. Do not include any registered nurses more appropriately reported in other occupational categories such as hospital administrator or inhalation therapist.

- 6.1 **Practical or Vocational Nurses**—Nurses who work under the supervision of registered nurses and/or physicians, who are licensed or eligible for licensure to practice. Do not include any practical nurses more appropriately reported in other occupational categories, such as surgical technician (item 10.2).
- 6.2 **Nursing Aides, Orderlies, and Attendants**—Persons who assist the nursing staff by performing routine duties in caring for patients, under the direct supervision of a nurse. Include home health aides.
- 6.3 **Ward Clerks**—Persons who perform clerical services in the patient-care units or nursing units, usually also serving as receptionists.

PHARMACY

- 7.0 **Pharmacists**—Pharmacists, licensed to practice within the State, who are concerned with the preparation and distribution of medicinal products.
- 7.1 **Pharmacy Assistants and Aides**—Persons who work under the direction of a pharmacist.

RADIOLOGIC TECHNOLOGY

- 8.0 **X-Ray Technologists and Technicians**—Persons responsible for using X-Ray and fluoroscopic equipment for diagnostic or therapeutic purposes, under the direction of a physician.
- 8.1 **Nuclear Medical and Radiation Therapy Technologists and Technicians**—Persons responsible for operating specialized equipment that traces or measures radioactivity, who assist the physician in administering radioisotopes or are responsible for using radiation producing devices to administer therapeutic treatments as prescribed by the radiologist.
- 8.2 **Radiologic Assistants**—Persons who assist the radiologic technologists in 8.0 or 8.1. Include dark room helpers.

THERAPEUTIC SERVICES

- 9.0 **Occupational Therapists**—Therapists who select and direct physical, educational, social, and daily living activities designed to meet specific needs of mentally or physically disabled patients.
- 9.1 **Occupational Therapy Assistants and Aides**—Persons who work under the direction of an occupational therapist.
- 9.2 **Physical Therapists**—Therapists who apply techniques and treatments to restore physical function and prevent disability.
- 9.3 **Physical Therapy Assistants and Aides**—Persons who work under the direction of a physical therapist.
- 9.4 **Speech Pathologists and Audiologists**—Therapists concerned with the evaluation and treatment of speech and hearing disorders.
- 9.5 **Recreation Therapists and Aides**—Persons who develop or supervise programs involving sports, crafts, and other recreational activities for patients.
- 9.6 **Inhalation Therapists and Aides**—Persons who use skills and equipment to attempt to restore normal function to the respiratory system.
- 9.7 **Social Workers**—College graduates whose work is concerned with serious social problems of patients and their families. Include medical and psychiatric social workers.
- 9.8 **Social Work Assistants and Aides**—Persons who work under the direction of a social worker, such as casework aides.

OTHER HEALTH PROFESSIONAL AND TECHNICAL

- 10.0 **Hospital Administrators and Assistants**—Persons responsible for the overall administrative and executive functions for the hospital. Exclude persons whose administrative responsibilities lie within one professional area, such as the supervisor of nurses or chief pharmacist.

- 10.1 **Medical Secretaries**—Secretaries with special education or training designed to help function in a health setting. Include dental secretaries and medical assistants.
- 10.2 **Surgical Aides**—Persons (other than nurses) who assist physicians or nurses in the care of patients in the operating or delivery room and assist in the care, preparation, and maintenance of sterile and unsterile supplies and equipment. Alternate title: Surgical technician.
- 10.3 **Obstetric, Pediatric, and Other Physicians' Aides**—Persons (other than nurses) with specialized but limited skills in one or more areas of medical practice, who assist physicians or nurses in the care and treatment of patients.
- 10.4 **Electrocardiographic Technicians**—Persons who observe and record patterns of heart function.
- 10.5 **Electroencephalograph and Other Medical Machine Technicians**—Persons who observe and record readings of patients condition from medical machines not reported on line 10.4. Include biomedical equipment technicians and cardiopulmonary technicians.
- 10.6 **Ambulance Drivers and Attendants**—Persons staffing emergency vehicles who are specially trained in first aid and the handling of patients.
- 10.7 **Personnel in Other Health Occupations**—Persons not previously included in section B who work in occupations requiring special education and training to help them function in a health setting. Examples are: Clinical psychologist, corrective therapist, hospital librarian, medical illustrator, medical librarian, optometrist, orthotist, podiatrist, prosthetist.
- 10.8 **Trainees Not Reported in Categories 1.0 Through 10.7**—Persons paid directly by the hospital who are in student or trainee status. Include nursing students if so paid. Exclude medical and dental interns and residents, employees receiving informal on-the-job training, and those with regular jobs who spend a minority of their time in training; report any such in the appropriate category above.

OTHER HOSPITAL PERSONNEL

- 11.0 **Food Service**—All persons (other than dietitians and dietary technicians) who assist in the preparation and serving of food. If the food service is contracted outside the hospital, report here only those persons who are paid directly by the hospital.
- 11.1 **Laundry**—All persons, including supervisors, who handle, wash, and distribute laundry. If the laundry service is contracted outside the hospital, report here only those persons who are paid directly by the hospital.
- 11.2 **Housekeeping**—All persons, including supervisors, floor and ward maids, and porters who are responsible for the cleanliness of the hospital plant.
- 11.3 **Maintenance**—All persons, including supervisors, who are responsible for maintenance of the hospital plant, repairs, and upkeep of the grounds. If your hospital has a security service of guards paid directly by the hospital, report them here.
- 11.4 **Business Management**—All persons engaged in the business affairs of the hospital, other than hospital administrators and assistants.
- 11.5 **Clerical, Secretarial and Related Services**—Do not include medical secretaries, ward clerks, or medical record clerks.
- 11.6 **All Other Hospital Personnel**—Persons who are not in one of the health occupations (groups 1-10) and are not included in any of the other categories in group 11.

Form HSM-T6 3-69	FORM APPROVED BUDGET BUREAU NO. 68-S68097 APPROVAL EXPIRES 12-31-69
<p>U.S. PUBLIC HEALTH SERVICE NATIONAL CENTER FOR HEALTH STATISTICS acting as collecting agent for the BUREAU OF HEALTH PROFESSIONS EDUCATION AND MANPOWER TRAINING</p> <p>HOSPITAL MANPOWER SURVEY</p>	

Dear Sir:

In 1966 the American Hospital Association (AHA) conducted, on behalf of the U.S. Public Health Service (PHS), a survey of hospital manpower. Results were published by the Association in "Manpower Resources in Hospitals - 1966." Data from this survey have been widely used in health manpower planning. They remain the only source of information on the national distribution of supply of and demand for many types of hospital manpower.

This single survey does not, of course, show current trends in hospital manpower utilization or requirements. In addition the survey is now nearly three years out of date. The importance of better understanding of health manpower problems prompts PHS to repeat the survey with the collaboration of AHA. The survey will be conducted by the National Center for Health Statistics with participation by the Bureau of the Census.

All information will be accorded confidential treatment by PHS and AHA, and the statistics will be presented in such a manner that no individual hospital can be identified. However, in the event that your State Association conducts a manpower survey of all hospitals, a copy of your completed questionnaire will be made available for that purpose.

We are well aware of the many requests for information that hospitals receive, and add to them only in the conviction that the information you can provide is essential for national health manpower planning.

Thank you for your attention to this request.

Sincerely yours,

Theodore D. Woolsey
Theodore D. Woolsey
Director

Section A - BEDS AND UTILIZATION

Include data for your entire hospital and all parts, units, component institutions, etc. However, do not include any component or unit which has its own separate discharge procedures. The latter are to be considered separate facilities. If you are in doubt about any unit, please include the unit and explain in the "Comments" section on page 4.

	Adult and pediatric	Newborn
1. What was the number of inpatient days of service during calendar year 1968?		
2. What was the total inpatient days of service for the 31 days of March 1969?		
3. How many beds were set up and staffed for inpatients on March 28, 1969?		
4. How many beds were set up but not staffed on March 28, 1969?		
5. How many additional beds do you plan to add during the next 12 months?		

INSTRUCTIONS FOR COMPLETING SECTION B

1. Enter the number of *regularly employed persons on the payroll* by appropriate occupation.
 2. Report persons functioning in *more than one occupational category only once*, according to the occupation he devotes most of his time.
 3. See attachment for occupational definitions.
 4. Mark a dash (-) if there are no employees in any of the specific occupational categories.
- 5a. *Personnel to include*
- Teaching staff
 - Research workers
 - Staff of outpatient facilities
 - Staff of extended care units
 - Temporarily absent employees
 - Trainees (if on the payroll)
 - Members of religious orders, whether paid or unpaid
- b. *Personnel to exclude*
- Courtesy or attending staff
 - Persons providing services on fee-for-service or contract basis
 - Persons who work "on call" to relieve temporarily absent employees
 - Private duty nurses
 - Volunteer workers
6. *Column (f)*--If the hospital bed capacity will be increased during the next 12 months, estimate the personnel requirements in excess of those already reported in the preceding columns. (b-e) Also include in your estimate additional personnel required for new services to be established.

SECTION B. PERSONNEL BY OCCUPATIONAL CATEGORY

Occupational category (a)	Number of Employees on payroll as of March 28, 1969		Additional full-time personnel needed to provide optimum care for present patient load		Anticipated additional personnel needed next year for staffing more beds and/or new services (f)
	Full time (35 hrs or more per week) (b)	Part time (Less than 35 hrs per week) (c)	Budgeted vacant positions (d)	Positions not in budget (e)	
PHYSICIANS					_____
1.0 Medical interns and residents					
1.1 Other physicians					
DENTAL SERVICES					_____
2.0 Dental interns and residents					
2.1 Other dentists					
2.2 Dental hygienists, licensed					
2.3 Dental assistants					
2.4 Dental laboratory technicians					
CLINICAL LABORATORY SERVICES					_____
3.0 Clinical laboratory scientists					
3.1 Clinical laboratory technologists					
3.2 Cytotechnologists-technicians					
3.3 Histologic technicians and aides					
3.4 Other clinical laboratory personnel					
DIETARY SERVICES					_____
4.0 Dietitians					
4.1 Dietary technicians					
MEDICAL RECORD SERVICES					_____
5.0 Medical record librarians					
5.1 Medical record technicians					
5.2 Medical record clerks					
NURSING SERVICES					_____
6.0 Registered nurses					
6.1 Practical or vocational nurses, licensed					
6.2 Nursing aides, orderlies, and attendants					
6.3 Ward clerks					

SECTION B PERSONNEL BY OCCUPATIONAL CATEGORY (Continued)					
Occupational category (a)	Number of Employees on payroll as of March 28, 1969		Additional full time personnel needed to provide optimum care for present patient load		Anticipated additional personnel needed next year for staffing more beds and/or new services (f)
	Full time (35 hrs or more per week) (b)	Part time (Less than 35 hrs per week) (c)	Budgeted vacant positions (d)	Positions not in budget (e)	
PHARMACY.....					---
7.0 Pharmacists, licensed.....					
7.1 Pharmacy assistants and aides.....					
RADIOLOGIC TECHNOLOGY.....					---
8.0 X-ray technologists-technicians.....					
8.1 Nuclear medical and radiation therapy..... technologists-technicians.....					
8.2 Radiologic assistants.....					
THERAPEUTIC SERVICES.....					---
9.0 Occupational therapists.....					
9.1 Occupational therapy assistants and aides....					
9.2 Physical therapists.....					
9.3 Physical therapy assistants and aides.....					
9.4 Speech pathologists and audiologists.....					
9.5 Recreation therapists and aides.....					
9.6 Inhalation therapists and aides.....					
9.7 Social workers.....					
9.8 Social work assistants and aides.....					
OTHER HEALTH PROFESSIONAL AND TECHNICAL.....					---
10.0 Hospital administrators and assistants.....					
10.1 Medical secretaries.....					
10.2 Surgical aides.....					
10.3 Obstetrical, pediatric, and other physicians' aides.....					
10.4 Electrocardiographic technicians.....					
10.5 Electroencephalograph and other medical machine technicians.....					
10.6 Ambulance drivers and attendants.....					
10.7 Personnel in other health occupations.....					
10.8 Trainees not reported in categories 1.0 through 10.7.....					
OTHER HOSPITAL PERSONNEL.....					XXXX
11.0 Food service.....					
11.1 Laundry.....					
11.2 Housekeeping.....					
11.3 Maintenance.....					
11.4 Business management.....					
11.5 Clerical, secretarial and related services....					
11.6 All other hospital personnel.....					
TOTAL HOSPITAL PERSONNEL.....					XXXX

INSTRUCTIONS FOR COMPLETING SECTION C

1. Report information on the formal health occupation training programs. Do not include education activities, orientation programs, informal on-the-job training, and training activities for other than health occupations. Exclude programs of colleges and universities conducted all or in part in your hospital but for which your hospital does not control admission (e.g., clinical components of courses).
2. Employees reported in 10.8 of Section B (trainees) should also be listed in column d. These are persons paid directly by the hospital who are in student or trainee status.
3. Others reported in column (e) are not paid directly by the hospital. They may, however, receive a stipend from such sources as the federal government.

SECTION C - HEALTH OCCUPATION TRAINING PROGRAMS

Has your hospital conducted any formal health occupation training programs (for other than physicians and dentists) in the past 12 months?

☐ Yes

☐ No (Skip to Section D)

In the last 12 months were formal training programs conducted for any of the following occupations			Length of training (months)	Number of persons who completed training in calendar 1968	Enrollment on March 28, 1969		College affiliation	
					Employees (on payroll)	Other number (not on payroll)	Yes	No
(a)	No	Yes	(b)	(c)	(d)	(e)	(f)	(g)
1. Certified lab. assistant	<input type="checkbox"/>	<input type="checkbox"/>						
2. Cytotechnology	<input type="checkbox"/>	<input type="checkbox"/>						
3. Dietetic Internship	<input type="checkbox"/>	<input type="checkbox"/>						
4. Medical technology	<input type="checkbox"/>	<input type="checkbox"/>						
5. Nursing aide or attendant	<input type="checkbox"/>	<input type="checkbox"/>						
6. Practical nursing	<input type="checkbox"/>	<input type="checkbox"/>						
7. Registered nursing	<input type="checkbox"/>	<input type="checkbox"/>						
8. Surgical technician	<input type="checkbox"/>	<input type="checkbox"/>						
9. Ward clerk	<input type="checkbox"/>	<input type="checkbox"/>						
10. X-ray technology	<input type="checkbox"/>	<input type="checkbox"/>						
11. Other formal programs (Specify):	<input type="checkbox"/>	<input type="checkbox"/>						

SECTION D

Name of person completing this form	Date
Title	Telephone number
	Area code Number

Return the completed questionnaire in the postage-paid envelope provided, to: DHEW, Public Health Service, HSMHA, National Center for Health Statistics, DHRS, Health Facilities Statistics, Washington, D.C. 20201

Comments

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Table 1. *Number of persons employed and additional positions needed to provide optimum patient care in hospitals in the United States, by category of personnel: 1969*

Category of personnel	Present employment				Additional positions needed	
	Total	Full time ¹	Part time ²	Equivalent full time ³	Budgeted positions vacant	Positions net in budget
All categories.....	2,858,500	2,360,400	498,100	2,609,400	116,500	48,300
All professional and technical..	1,874,200	1,515,000	359,200	1,694,600	93,400	35,800
Physicians:						
Medical interns and residents...	55,000	52,500	2,500	53,800	4,100	1,100
Other physicians.....	58,200	39,700	18,500	48,900	2,700	2,100
Dental services:						
Dental interns and residents....	1,600	1,500	100	1,600	(⁴)	(⁴)
Other dentists.....	5,800	4,400	1,400	5,100	100	100
Dental hygienists, licensed.....	500	500	(⁴)	500	100	100
Dental assistants.....	5,300	5,200	100	5,300	400	300
Dental laboratory technicians..	1,400	1,400	(⁴)	1,400	100	(⁴)
Clinical laboratory services:						
Clinical laboratory scientists....	4,500	3,800	700	4,100	200	100
Clinical laboratory technol-						
ogists.....	44,500	36,300	8,200	40,400	2,300	400
Cytotechnologists-technicians..	3,300	2,700	600	3,000	200	100
Histologic technicians and						
aides.....	5,600	4,900	700	5,200	200	100
Other clinical laboratory						
personnel.....	42,800	32,700	10,100	37,800	1,200	500
Dietary services:						
Dietitians.....	12,700	9,400	3,300	11,000	700	200
Dietary technicians.....	18,100	16,300	1,800	17,200	400	100
Medical record services:						
Medical record librarians.....	6,400	5,400	1,000	5,900	400	100
Medical record technicians.....	6,900	6,200	700	6,600	300	200
Medical record clerks.....	33,300	28,000	5,300	30,600	1,100	400
Nursing services:						
Registered nurses.....	461,000	319,400	141,600	390,200	32,300	7,100
Practical or vocational nurses,						
licensed.....	205,000	171,400	33,600	188,200	15,300	3,900
Nursing aides, orderlies, and						
attendants.....	568,500	489,200	79,300	528,800	16,800	9,200
Ward clerks.....	58,000	49,100	8,900	53,600	2,500	2,100
Pharmacy:						
Pharmacists, licensed.....	13,600	9,800	3,800	11,700	600	200
Pharmacy assistants and aides..	9,900	7,300	2,600	8,600	300	200
Radiologic technology:						
X-ray technologists-techni-						
cians.....	31,100	26,500	4,600	28,800	1,300	500
Nuclear medical and radiation						
therapy technologists-						
technicians.....	3,100	2,800	300	2,900	200	100
Radiologic assistants.....	9,000	7,300	1,700	8,100	100	100

Table 1.—Continued

Category of personnel	Present employment				Additional positions needed	
	Total	Full time ¹	Part time ²	Equivalent full time ³	Budgeted positions vacant	Positions not in budget
Therapeutic services:						
Occupational therapists.....	5,400	4,700	700	5,100	600	300
Occupational therapy assistants and aides.....	5,100	4,800	300	5,000	200	200
Physical therapists.....	8,600	6,600	2,000	7,600	1,300	300
Physical therapy assistants and aides.....	8,700	7,100	1,600	7,900	400	200
Speech pathologists and audiologists.....	1,800	1,100	700	1,400	100	100
Recreation therapists and aides.....	5,500	4,700	800	5,100	300	200
Inhalation therapists and aides.....	14,600	12,800	1,800	13,700	900	500
Social workers.....	15,200	13,900	1,300	14,600	1,200	1,100
Social work assistants and aides.....	4,300	4,100	200	4,200	200	300
Other professional and technical:						
Hospital administrators and assistants.....	17,200	16,800	400	17,000	500	100
Medical secretaries.....	23,900	21,600	2,300	22,800	800	500
Surgical aides.....	23,400	21,400	2,000	22,400	900	300
Obstetric, pediatric, and other physicians' aides.....	10,900	10,000	900	10,500	300	200
Electrocardiographic technicians.....	9,100	7,500	1,600	8,300	200	100
Electroencephalograph and other medical machine technicians.....	3,100	2,600	500	2,800	100	100
Ambulance drivers and attendants.....	5,600	4,400	1,200	5,000	100	300
Personnel in other health occupations.....	21,800	18,800	3,000	20,300	700	1,200
Trainees not otherwise reported.....	24,800	18,500	6,300	21,700	900	100
All other hospital personnel.....	984,300	845,400	138,900	914,800	23,100	12,500
Food service.....	243,800	192,700	51,100	218,300	4,900	1,700
Laundry.....	59,000	54,000	5,000	56,500	1,000	500
Housekeeping.....	179,500	160,700	18,800	170,100	4,100	2,700
Maintenance.....	102,500	96,000	6,500	99,200	2,700	900
Business management.....	62,900	56,300	6,600	59,600	1,200	400
Clerical, secretarial, and related services.....	191,600	163,100	28,500	177,400	4,600	1,400
Other hospital personnel.....	145,000	122,600	22,400	133,800	4,300	5,000

NOTE.—Column figures may not add to totals and subtotals due to rounding.

¹ Employed 35 hours or more per week.² Employed less than 35 hours per week.³ Equivalent full-time employment was calculated on the basis that 2 part-time persons equal 1 full-time person.⁴ Less than 50.

Table 2. *Percent of professional and technical health personnel employed full time in hospitals in the United States, by category of personnel and ownership of hospital: 1969*

Category of personnel	Ownership of hospital			
	Total	Federal	State and local government	Nongovernmental
All professional and technical.....	80.8	96.4	87.4	75.2
Physicians:				
Medical interns and residents.....	95.4	96.0	98.3	93.5
Other physicians.....	68.2	92.1	64.1	55.2
Dental services:				
Dental interns and residents.....	93.5	100.0	83.1	92.6
Other dentists.....	75.3	99.0	47.7	31.7
Dental hygienists, licensed.....	93.1	99.4	86.2	73.8
Dental assistants.....	97.1	99.3	88.0	86.1
Dental laboratory technicians.....	98.6	100.0	99.2	69.0
Clinical laboratory services:				
Clinical laboratory scientists.....	84.4	96.3	88.4	81.4
Clinical laboratory technologists.....	81.5	96.0	88.3	78.6
Cytotechnologists-technicians.....	82.8	96.5	87.6	81.0
Histologic technicians and aides.....	88.2	99.7	95.3	84.6
Other clinical laboratory personnel.....	76.3	94.3	82.6	71.5
Dietary services:				
Dietitians.....	74.3	95.4	74.5	70.5
Dietary technicians.....	90.3	100.0	88.5	90.5
Medical record services:				
Medical record librarians.....	84.9	100.0	82.4	84.8
Medical record technicians.....	89.7	100.0	90.5	88.0
Medical record clerks.....	84.2	96.0	90.6	79.5
Nursing services:				
Registered nurses.....	69.3	92.6	77.8	64.4
Practical or vocational nurses, licensed.....	83.6	99.2	89.7	79.8
Nursing aides, orderlies, and attendants.....	86.0	99.2	91.8	79.6
Ward clerks.....	84.6	97.7	93.2	81.1
Pharmacy:				
Pharmacists, licensed.....	72.4	99.5	68.9	69.8
Pharmacy assistants and aides.....	73.3	97.1	78.7	66.7
Radiologic technology:				
X-ray technologists-technicians.....	85.1	97.9	87.5	82.9
Nuclear medical and radiation therapy technologists-technicians.....	91.3	98.4	90.8	90.6
Radiologic assistants.....	81.2	94.8	81.5	79.7
Therapeutic services:				
Occupational therapists.....	86.2	92.6	93.8	69.2
Occupational therapy assistants and aides.....	93.3	100.0	97.5	78.4
Physical therapists.....	76.2	99.9	73.0	73.0
Physical therapy assistants and aides.....	81.4	100.0	87.8	77.0
Speech pathologists and audiologists.....	62.6	76.5	74.5	57.1
Recreation therapists and aides.....	85.9	97.8	91.5	66.0
Inhalation therapists and aides.....	87.5	95.5	93.4	86.2
Social workers.....	91.3	94.3	94.4	83.2
Social work assistants and aides.....	94.6	95.6	97.7	89.1

Table 2.—*Continued*

Category of personnel	Ownership of hospital			
	Total	Federal government	State and local	Nongovern- mental
Other health professional and technical:				
Hospital administrators and assistants.....	97.5	100.0	98.5	96.8
Medical secretaries.....	90.2	98.4	94.8	86.1
Surgical aides.....	91.6	99.6	93.1	90.0
Obstetric, pediatric, and other physicians' aides.....	91.3	99.9	91.7	87.5
Electrocardiographic technicians.....	82.8	99.7	84.3	78.3
Electroencephalograph and other medical machine technicians.....	85.1	94.2	92.3	80.3
Ambulance drivers and attendants.....	78.7	100.0	68.6	71.1
Personnel in other health occupations.....	86.5	97.3	87.8	77.6
Trainees not elsewhere reported.....	74.6	75.8	92.4	68.2

Table 3. *Number and percent of budgeted positions vacant in hospitals in the United States, by category of personnel: 1969*

Category of personnel	Total budgeted positions	Equivalent full-time employment ¹	Budgeted positions vacant	Percent vacant
All professional and technical.....	1,788,000	1,694,600	93,400	5.2
Physicians:				
Medical interns and residents.....	57,900	53,800	4,100	7.1
Other physicians.....	51,600	48,900	2,700	5.2
Dental services:				
Dental interns and residents.....	1,600	1,600	((²))	2.0
Other dentists.....	5,200	5,100	100	1.9
Dental hygienists, licensed.....	600	500	100	16.7
Dental assistants.....	5,700	5,300	400	7.0
Dental laboratory technicians.....	1,500	1,400	100	6.7
Clinical laboratory services:				
Clinical laboratory scientists.....	4,300	4,100	200	4.7
Clinical laboratory technologists.....	42,700	40,400	2,300	5.4
Cytotechnologists-technicians.....	3,200	3,000	200	6.2
Histologic technicians and aides.....	5,400	5,200	200	3.7
Other clinical laboratory personnel.....	39,000	37,800	1,200	3.1
Dietary services:				
Dietitians.....	11,700	11,000	700	6.0
Dietary technicians.....	17,600	17,200	400	2.3
Medical record services:				
Medical record librarians.....	6,300	5,900	400	6.3
Medical record technicians.....	6,900	6,600	300	4.3
Medical record clerks.....	31,700	30,600	1,100	3.5
Nursing services:				
Registered nurses.....	422,500	390,200	32,300	7.6
Practical or vocational nurses, licensed.....	203,500	188,200	15,300	7.5
Nursing aides, orderlies, and attendants.....	545,600	528,800	16,800	3.1
Ward clerks.....	56,100	53,600	2,500	4.5
Pharmacy:				
Pharmacists, licensed.....	12,300	11,700	600	4.9
Pharmacy assistants and aides.....	8,900	8,600	300	3.4
Radiologic technology:				
X-ray technologists-technicians.....	30,100	28,800	1,300	4.3
Nuclear medical and radiation therapy technologists-technicians.....	3,100	2,900	200	6.5
Radiologic assistants.....	8,200	8,100	100	1.2
Therapeutic services:				
Occupational therapists.....	5,700	5,100	600	10.5
Occupational therapy assistants and aides.....	5,200	5,000	200	3.8
Physical therapists.....	8,900	7,600	1,300	14.6
Physical therapy assistants and aides.....	8,300	7,900	400	4.8
Speech pathologists and audiologists.....	1,500	1,400	100	6.7
Recreation therapists and aides.....	5,400	5,100	300	5.6
Inhalation therapists and aides.....	14,600	13,700	900	6.2
Social workers.....	15,800	14,600	1,200	7.6
Social work assistants and aides.....	4,400	4,200	200	4.5

Table 3.—*Continued*

Category of personnel	Total budgeted positions	Equivalent full-time employment ¹	Budgeted positions vacant	Percent vacant
Other health professional and technical:				
Hospital administrators and assistants.....	17,700	17,000	500	2.9
Medical secretaries.....	23,600	22,800	800	3.4
Surgical aides.....	23,300	22,400	900	3.9
Obstetric, pediatric, and other physicians' aides....	10,800	10,500	300	2.8
Electrocardiographic technicians.....	8,500	8,300	200	2.4
Electroencephalograph and other medical machine technicians.....	2,900	2,800	100	3.4
Ambulance drivers and attendants.....	5,100	5,000	100	2.0
Personnel in other health occupations.....	21,000	20,300	700	3.3
Trainees not elsewhere reported.....	22,600	21,700	900	4.0

NOTE.—Column figures may not add to totals due to rounding.

¹ Equivalent full-time employment was calculated on the basis that 2 part-time persons equal 1 full-time person.

² Less than 50.

Table 4. *Number of professional and technical health personnel employed in hospitals in the United States, by category of personnel and ownership of hospital: 1969*

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
All professional and technical.....	1,874,200	182,700	542,500	1,149,000
Physicians:				
Medical interns and residents.....	55,000	6,800	18,000	30,200
Other physicians.....	58,200	15,700	20,000	22,500
Dental services:				
Dental interns and residents.....	1,600	700	400	500
Other dentists.....	5,800	3,400	1,400	1,000
Dental hygienists, licensed.....	500	300	100	100
Dental assistants.....	5,300	4,300	700	300
Dental laboratory technicians.....	1,400	1,200	100	100
Clinical laboratory services:				
Clinical laboratory scientists.....	4,500	500	800	3,200
Clinical laboratory technologists.....	44,500	2,200	9,200	33,100
Cytotechnologists-technicians.....	3,300	100	600	2,600
Histologic technicians and aides.....	5,600	600	1,100	3,900
Other clinical laboratory personnel.....	42,800	4,800	8,700	29,300
Dietary services:				
Dietitians.....	12,700	1,400	3,100	8,200
Dietary technicians.....	18,100	800	5,900	11,400
Medical record services:				
Medical record librarians.....	6,400	300	1,800	4,300
Medical record technicians.....	6,900	600	1,700	4,600
Medical record clerks.....	33,300	2,800	10,000	20,500
Nursing services:				
Registered nurses.....	461,000	32,400	99,200	329,400
Practical or vocational nurses, licensed.....	205,000	11,200	57,000	136,800
Nursing aides, orderlies, and attendants.....	568,500	50,400	217,600	300,500
Ward clerks.....	58,000	3,100	12,800	42,100
Pharmacy:				
Pharmacists, licensed.....	13,600	1,300	3,200	9,100
Pharmacy assistants and aides.....	9,900	1,300	2,100	6,500
Radiologic technology:				
X-ray technologists-technicians.....	31,100	2,700	6,700	21,700
Nuclear medical and radiation therapy technologists-technicians.....	3,100	200	600	2,300
Radiologic assistants.....	9,000	700	1,700	6,600
Therapeutic services:				
Occupational therapists.....	5,400	800	3,000	1,600
Occupational therapy assistants and aides.....	5,100	600	3,300	1,200
Physical therapists.....	8,600	1,100	2,000	5,500
Physical therapy assistants and aides.....	8,700	800	1,800	6,100
Speech pathologists and audiologists.....	1,800	200	300	1,300
Recreation therapists and aides.....	5,500	900	3,100	1,500
Inhalation therapists and aides.....	14,600	400	2,300	11,900
Social workers.....	15,200	2,200	8,800	4,200
Social work assistants and aides.....	4,300	900	2,100	1,300

Table 4.—*Continued*

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
Other health professional and technical:				
Hospital administrators and assistants	17,200	1,900	4,300	11,000
Medical secretaries	23,900	4,000	5,700	14,200
Surgical aides	23,400	2,700	3,200	17,500
Obstetric, pediatric, and other physicians' aides	10,900	2,000	1,700	6,400
Electrocardiographic technicians	9,100	1,500	1,500	6,100
Electroencephalograph and other medical machine technicians	3,100	400	800	1,900
Ambulance drivers and attendants	5,600	1,700	2,800	1,100
Personnel in other health occupations	21,800	6,700	6,000	9,100
Trainees not elsewhere reported	24,800	3,200	5,600	16,000

NOTE.—Column figures may not add to totals due to rounding.

Table 5. *Number of professional and technical health personnel employed in non-Federal hospitals in the United States, by category of personnel and type of hospital: 1969*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
All professional and technical	1,434,100	75,700	181,600
Physicians:			
Medical interns and residents	44,900	(1)	2,900
Other physicians	29,500	3,100	9,900
Dental services:			
Dental interns and residents	800	(1)	(1)
Other dentists	1,500	(1)	500
Dental hygienists, licensed	(1)	(1)	(1)
Dental assistants	500	(1)	(1)
Dental laboratory technicians	(1)	(1)	(1)
Clinical laboratory services:			
Clinical laboratory scientists	3,800	(1)	(1)
Clinical laboratory technologists	40,600	900	800
Cytotechnologists-technicians	3,100	(1)	(1)
Histologic technicians and aides	4,700	(1)	(1)
Other clinical laboratory personnel	36,600	800	600
Dietary services:			
Dietitians	10,200	600	600
Dietary technicians	14,900	500	1,800
Medical record services:			
Medical record librarians	5,400	(1)	500
Medical record technicians	5,800	(1)	(1)
Medical record clerks	26,500	1,600	3,000
Nursing services:			
Registered nurses	397,700	11,700	19,300
Practical or vocational nurses, licensed	173,900	7,900	12,100
Nursing aides, orderlies, and attendants	379,600	36,600	101,800
Ward clerks	52,800	600	1,500
Pharmacy:			
Pharmacists, licensed	11,400	(1)	500
Pharmacy assistants and aides	8,200	(1)	(1)
Radiologic technology:			
X-ray technologists-technicians	27,300	700	600
Nuclear medical and radiation therapy technologists-technicians	2,800	(1)	(1)
Radiologic assistants	8,300	(1)	(1)
Therapeutic services:			
Occupational therapists	1,800	500	2,300
Occupational therapy assistants and aides	1,100	700	2,700
Physical therapists	6,600	800	(1)
Physical therapy assistants and aides	7,000	700	(1)
Speech pathologists and audiologists	1,200	(1)	(1)
Recreation therapists and aides	1,300	500	2,700
Inhalation therapists and aides	14,100	(1)	(1)
Social workers	5,500	1,300	6,200
Social work assistants and aides	1,700	(1)	1,400

Table 5.—Continued

Category of personnel	Community	Long stay	
		General and special	Psychiatric
Other health professional and technical:			
Hospital administrators and assistants.....	13,200	1,000	1,100
Medical secretaries.....	16,600	600	2,700
Surgical aides.....	20,500	(1)	(1)
Obstetric, pediatric, and other physicians' aides.....	8,100	(1)	(1)
Electrocardiographic technicians.....	7,400	(1)	(1)
Electroencephalograph and other medical machine technicians.....	2,400	(1)	(1)
Ambulance drivers and attendants.....	3,300	(1)	(1)
Personnel in other health occupations.....	11,500	1,000	2,600
Trainees not elsewhere reported.....	19,900	(1)	1,500

NOTE.—Column figures may not add to totals due to rounding.

¹ Figures less than 500 not shown.

Table 6. *Percent of professional and technical health personnel employed full time in non-Federal hospitals in the United States, by category of personnel and type of hospital: 1969*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
All professional and technical	76.7	85.7	95.5
Physicians:			
Medical interns and residents	95.5	(1)	96.8
Other physicians	55.9	48.4	73.0
Dental services:			
Dental interns and residents	98.1	(1)	(1)
Other dentists	37.5	(1)	(1)
Dental hygienists, licensed	(1)	(1)	(1)
Dental assistants	(1)	(1)	(1)
Dental laboratory technicians	(1)	(1)	(1)
Clinical laboratory services:			
Clinical laboratory scientists	82.7	(1)	(1)
Clinical laboratory technologists	80.2	90.3	97.4
Cytotechnologists-technicians	82.2	(1)	(1)
Histologic technicians and aides	86.3	(1)	(1)
Other clinical laboratory personnel	73.2	92.7	98.6
Dietary services:			
Dietitians	71.0	72.3	82.0
Dietary technicians	88.9	(1)	95.5
Medical record services:			
Medical record librarians	84.5	(1)	(1)
Medical record technicians	88.4	(1)	(1)
Medical record clerks	81.3	89.0	97.7
Nursing services:			
Registered nurses	66.0	78.7	91.6
Practical or vocational nurses, licensed	81.1	93.5	99.1
Nursing aides, orderlies, and attendants	80.5	91.1	98.4
Ward clerks	83.3	99.4	99.5
Pharmacy:			
Pharmacists, licensed	69.5	(1)	83.4
Pharmacy assistants and aides	68.7	(1)	(1)
Radiologic technology:			
X-ray technologists-technicians	84.0	74.7	92.9
Nuclear medical and radiation therapy technologists-technicians	90.5	(1)	(1)
Radiologic assistants	80.1	(1)	(1)
Therapeutic services:			
Occupational therapists	76.7	81.0	92.6
Occupational therapy assistants and aides	79.2	88.6	98.9
Physical therapists	71.5	79.8	(1)
Physical therapy assistants and aides	79.1	77.8	(1)
Speech pathologists and audiologists	61.7	(1)	(1)
Recreation therapists and aides	70.3	85.5	89.4
Inhalation therapists and aides	87.2	(1)	(1)
Social workers	87.1	89.3	94.3
Social work assistants and aides	91.9	(1)	98.5

Table 6.—Continued

Category of personnel	Community	Long stay	
		General and special	Psychiatric
Other health professional and technical:			
Hospital administrators and assistants.....	97.2	94.8	100.0
Medical secretaries.....	86.7	89.4	100.0
Surgical aides.....	90.5	(1)	(1)
Obstetric, pediatric, and other physicians' aides.....	88.4	(1)	(1)
Electrocardiographic technicians.....	79.4	(1)	(1)
Electroencephalograph and other medical machine technicians.....	84.9	(1)	(1)
Ambulance drivers and attendants.....	66.1	(1)	(1)
Personnel in other health occupations.....	80.2	82.4	88.1
Trainees not elsewhere reported.....	72.9	(1)	95.1

¹ Percent not calculated when base is less than 500.

Table 7. *Percent of budgeted positions vacant in hospitals in the United States, by category of personnel and ownership of hospital: 1969*

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
All professional and technical	5.2	3.1	6.8	4.8
Physicians:				
Medical interns and residents	7.1	3.8	6.3	8.2
Other physicians	5.2	2.0	10.7	2.2
Dental services:				
Dental interns and residents	2.0	1.3	(1)	1.4
Other dentists	1.9	1.6	3.4	0.3
Dental hygienists, licensed	16.7	(1)	(1)	(1)
Dental assistants	7.0	7.2	4.5	(1)
Dental laboratory technicians	6.7	5.9	(1)	(1)
Clinical laboratory services:				
Clinical laboratory scientists	4.7	3.5	4.2	3.3
Clinical laboratory technologists	5.4	3.9	6.4	5.0
Cytotechnologists-technicians	6.2	(1)	6.9	4.9
Histologic technicians and aides	3.7	6.1	3.2	2.7
Other clinical laboratory personnel	3.1	4.5	3.7	2.7
Dietary services:				
Dietitians	6.0	3.9	7.9	5.8
Dietary technicians	2.3	2.3	3.4	1.8
Medical record services:				
Medical record librarians	6.3	(1)	7.9	5.8
Medical record technicians	4.3	5.4	6.0	2.9
Medical record clerks	3.5	2.9	5.1	2.4
Nursing services:				
Registered nurses	7.6	3.9	12.6	6.3
Practical or vocational nurses, licensed	7.5	5.1	10.0	6.6
Nursing aides, orderlies, and attendants	3.1	2.2	3.3	3.0
Ward clerks	4.5	3.9	4.9	4.4
Pharmacy:				
Pharmacists, licensed	4.9	4.6	6.3	4.8
Pharmacy assistants and aides	3.4	5.2	3.1	2.7
Radiologic technology:				
X-ray technologists-technicians	4.3	4.1	5.4	4.1
Nuclear medical and radiation therapy technologists-technicians	6.5	(1)	5.3	4.9
Radiologic assistants	1.2	2.5	1.6	1.7
Therapeutic services:				
Occupational therapists	10.5	2.8	11.1	15.3
Occupational therapy assistants and aides	3.8	1.2	2.7	9.5
Physical therapists	14.6	5.0	21.1	13.6
Physical therapy assistants and aides	4.8	2.2	5.1	4.3
Speech pathologists and audiologists	6.7	(1)	(1)	6.7
Recreation therapists and aides	5.6	2.9	8.0	4.0
Inhalation therapists and aides	6.2	(1)	8.9	5.6
Social workers	7.6	2.7	8.6	7.7
Social work assistants and aides	4.5	0	6.0	2.8

Table 7.—*Continued*

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
Other health professional and technical:				
Hospital administrators and assistants	2.9	1.7	5.0	2.5
Medical secretaries	3.4	2.1	4.8	3.4
Surgical aides	3.9	4.8	5.3	3.4
Obstetric, pediatric, and other physicians' aides	2.8	3.9	2.2	2.0
Electrocardiographic technicians	2.4	2.0	2.2	1.8
Electroencephalograph and other medical machine technicians	3.4	(1)	5.2	4.0
Ambulance drivers and attendants	2.0	1.0	2.1	1.7
Personnel in other health occupations	3.3	1.1	6.0	3.4
Trainees not elsewhere reported	4.0	(2)	10.3	2.1

¹ Percent not calculated when base is less than 500.² Less than 0.05 percent.

Table 8. *Percent of budgeted positions vacant in non-Federal hospitals in the United States, by category of personnel and type of hospital: 1969*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
All professional and technical	5.1	13.0	5.0
Physicians:			
Medical interns and residents	7.3	(1)	8.7
Other physicians	3.0	28.1	8.0
Dental services:			
Dental interns and residents	2.4	(1)	(1)
Other dentists	0.7	(1)	(1)
Dental hygienists, licensed	(1)	(1)	(1)
Dental assistants	(1)	(1)	(1)
Dental laboratory technicians	(1)	(1)	(1)
Clinical laboratory services:			
Clinical laboratory scientists	3.1	(1)	(1)
Clinical laboratory technologists	5.4	1.8	5.9
Cytotechnologists-technicians	4.8	(1)	(1)
Histologic technicians and aides	3.0	(1)	(1)
Other clinical laboratory personnel	2.9	4.5	3.9
Dietary services:			
Dietitians	6.1	11.3	5.8
Dietary technicians	2.1	(1)	4.8
Medical record services:			
Medical record librarians	6.2	(1)	(1)
Medical record technicians	3.8	(1)	(1)
Medical record clerks	3.0	7.6	5.1
Nursing services:			
Registered nurses	7.0	24.6	12.2
Practical or vocational nurses, licensed	6.5	24.2	9.5
Nursing aides, orderlies, and attendants	3.2	5.8	2.2
Ward clerks	4.5	15.8	1.9
Pharmacy:			
Pharmacists, licensed	5.3	(1)	1.6
Pharmacy assistants and aides	2.9	(1)	(1)
Radiologic technology:			
X-ray technologists-technicians	4.4	4.1	6.2
Nuclear medical and radiation therapy technologists-technicians	4.8	(1)	(1)
Radiologic assistants	1.6	(1)	(1)
Therapeutic services:			
Occupational therapists	15.4	24.7	7.2
Occupational therapy assistants and aides	7.8	6.4	2.6
Physical therapists	14.0	22.8	(1)
Physical therapy assistants and aides	3.6	9.4	(1)
Speech pathologists and audiologists	5.0	(1)	(1)
Recreation therapists and aides	5.0	6.5	7.8
Inhalation therapists and aides	5.9	(1)	(1)
Social workers	10.6	12.8	5.3
Social work assistants and aides	6.1	(1)	4.3

Table 8.—*Continued*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
Other health professional and technical:			
Hospital administrators and assistants.....	3.1	4.5	4.1
Medical secretaries.....	3.1	3.9	7.4
Surgical aides.....	3.4	(1)	(1)
Obstetric, pediatric, and other physicians' aides.....	2.1	(1)	(1)
Electrocardiographic technicians.....	1.7	(1)	(1)
Electroencephalograph and other medical machine technicians.....	4.0	(1)	(1)
Ambulance drivers and attendants.....	2.2	(1)	(1)
Personnel in other health occupations.....	3.1	7.4	8.8
Trainees not elsewhere reported.....	3.8	(1)	11.4

¹ Percent not calculated when base is less than 100.

Table 9. *Percent distribution of professional and technical health personnel by category in hospitals in the United States, by ownership of hospital: 1969*

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
All professional and technical	100.0	100.0	100.0	100.0
Physicians	6.0	12.3	7.0	4.6
Medical interns and residents	2.9	3.7	3.3	2.6
Other physicians	3.1	8.6	3.7	2.0
Dental services	0.8	5.5	0.5	0.2
Dental interns and residents	0.1	0.4	(1)	(1)
Other dentists	0.3	1.9	0.3	0.1
Dental hygienists, licensed	(2)	(1)	(1)	(1)
Dental assistants	0.3	2.4	0.1	(1)
Dental laboratory technicians	0.1	0.6	(1)	(1)
Clinical laboratory services	5.4	4.6	3.7	6.3
Clinical laboratory scientists	0.2	0.3	0.1	0.3
Clinical laboratory technologists	2.4	1.2	1.7	2.9
Cytotechnologists-technicians	0.2	(1)	0.1	0.2
Histologic technicians and aides	0.3	0.3	0.2	0.3
Other clinical laboratory personnel	2.3	2.7	1.6	2.6
Dietary services	1.6	1.2	1.7	1.7
Dietitians	0.7	0.8	0.6	0.7
Dietary technicians	0.9	0.4	1.1	1.0
Medical record services	2.5	2.0	2.5	2.6
Medical record librarians	0.3	(1)	0.3	0.4
Medical record technicians	0.4	0.3	0.3	0.4
Medical record clerks	1.8	1.5	1.9	1.8
Nursing services	69.0	53.1	71.2	70.4
Registered nurses	24.6	17.7	18.3	28.7
Practical or vocational nurses, licensed	11.0	6.1	10.5	11.9
Nursing aides, orderlies, and attendants	30.3	27.6	40.1	26.1
Ward clerks	3.1	1.7	2.3	3.7
Pharmacy	1.2	1.5	1.0	1.3
Pharmacists, licensed	0.7	0.7	0.6	0.8
Pharmacy assistants and aides	0.5	0.8	0.4	0.5

Table 9.—Continued

Category of personnel	Ownership of hospital			
	Total	Federal	State and local government	Nongovernmental
Radiologic technology.....	2.3	1.9	1.7	2.7
X-ray technologists-technicians.....	1.6	1.5	1.3	1.9
Nuclear medical and radiation therapy technologists-technicians.....	0.2	(1)	0.1	0.2
Radiologic assistants.....	0.5	0.4	0.3	0.6
Therapeutic services.....	3.7	4.3	4.9	3.0
Occupational therapists.....	0.3	0.4	0.6	0.2
Occupational therapy assistants and aides.....	0.3	0.3	0.6	0.1
Physical therapists.....	0.4	0.6	0.4	0.5
Physical therapy assistants and aides.....	0.5	0.4	0.3	0.5
Speech pathologists and audiologists.....	0.1	(1)	(1)	0.1
Recreation therapists and aides.....	0.3	0.5	0.6	0.1
Inhalation therapists and aides.....	0.8	(1)	0.4	1.0
Social workers.....	0.8	1.2	1.6	0.4
Social work assistants and aides.....	0.2	0.5	0.4	0.1
Other health professional and technical.....	7.5	13.6	5.8	7.2
Hospital administrators and assistants.....	0.9	1.1	0.8	0.9
Medical secretaries.....	1.3	2.2	1.1	1.2
Surgical aides.....	1.2	1.5	0.6	1.5
Obstetric, pediatric, and other physicians' aides.....	0.6	1.6	0.3	0.6
Electrocardiographic technicians.....	0.5	0.8	0.3	0.5
Electroencephalograph and other medical machine technicians.....	0.2	(1)	0.1	0.2
Ambulance drivers and attendants.....	0.3	0.9	0.5	0.1
Personnel in other health occupations.....	1.2	3.6	1.1	0.8
Trainees not elsewhere reported.....	1.3	1.7	1.0	1.4

¹ Percent not calculated when number of personnel is less than 500.

² Less than 0.05 percent.

Table 10. *Percent distribution of professional and technical health personnel by category in non-Federal hospitals in the United States, by type of hospital: 1969*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
All professional and technical	100.0	100.0	100.0
Physicians:	5.2	4.6	7.0
Medical interns and residents	3.1	(1)	1.6
Other physicians	2.1	4.1	5.4
Dental services	0.2	0.9	0.5
Dental interns and residents	0.1	(1)	(1)
Other dentists	0.1	(1)	(1)
Dental hygienists, licensed	(1)	(1)	(1)
Dental assistants	(1)	(1)	(1)
Dental laboratory technicians	(1)	(1)	(1)
Clinical laboratory services	6.2	2.4	0.9
Clinical laboratory scientists	0.3	(1)	(1)
Clinical laboratory technologists	2.8	1.2	0.4
Cytotechnologists-technicians	0.2	(1)	(1)
Histologic technicians and aides	0.3	(1)	(1)
Other clinical laboratory personnel	2.6	1.0	0.3
Dietary services	1.7	1.4	1.3
Dietitians	0.7	0.8	0.3
Dietary technicians	1.0	(1)	1.0
Medical record services	2.6	2.1	2.0
Medical record librarians	0.4	(1)	(1)
Medical record technicians	0.4	(1)	(1)
Medical record clerks	1.8	1.4	1.7
Nursing services	70.0	75.1	74.2
Registered nurses	27.7	15.4	10.7
Practical or vocational nurses, licensed	12.1	10.5	6.6
Nursing aides, orderlies, and attendants	26.5	48.4	56.1
Ward clerks	3.7	0.8	0.8
Pharmacy	1.4	0.7	0.4
Pharmacists, licensed	0.8	(1)	0.3
Pharmacy assistants and aides	0.6	(1)	(1)

Table 10.—*Continued*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
Radiologic technology.....	2.7	1.1	0.4
X-ray technologists-technicians.....	1.9	0.9	0.3
Nuclear medical and radiation therapy technologists-technicians.....	0.2	(1)	(1)
Radiologic assistants.....	0.6	(1)	(1)
Therapeutic services.....	2.8	6.8	8.7
Occupational therapists.....	0.1	0.7	1.3
Occupational therapy assistants and aides.....	0.1	0.9	1.5
Physical therapists.....	0.4	1.0	(1)
Physical therapy assistants and aides.....	0.5	1.0	(1)
Speech pathologists and audiologists.....	0.1	(1)	(1)
Recreation therapists and aides.....	0.1	0.7	1.5
Inhalation therapists and aides.....	1.0	(1)	(1)
Social workers.....	0.4	1.7	3.4
Social work assistants and aides.....	0.1	(1)	0.8
Other health professional and technical.....	7.2	4.9	4.6
Hospital administrators and assistants.....	0.9	1.4	0.6
Medical secretaries.....	1.2	0.9	1.5
Surgical aides.....	1.4	(1)	(1)
Obstetric, pediatric, and other physicians' aides.....	0.6	(1)	(1)
Electrocardiographic technicians.....	0.5	(1)	(1)
Electroencephalograph and other medical machine technicians.....	0.2	(1)	(1)
Ambulance drivers and attendants.....	0.2	(1)	(1)
Personnel in other health occupations.....	0.8	1.3	1.5
Trainees not elsewhere reported.....	1.4	(1)	0.8

¹ Percent not calculated when number of personnel is less than 500.

Table 11. *Percent of personnel providing services in selected service categories in hospitals in the United States, by ownership of hospital: 1969*

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
Clinical laboratory services.....	100.0	100.00	100.0	100.0
Clinical laboratory scientists.....	4.5	6.4	3.9	4.4
Clinical laboratory technologists.....	44.2	26.7	45.3	45.9
Cytotechnologists-technicians.....	3.2	(¹)	2.7	3.5
Histologic technicians and aides.....	5.5	6.9	5.2	5.5
Other clinical laboratory personnel.....	42.6	58.2	42.9	40.7
Dietary services.....	100.0	100.0	100.0	100.0
Dietitians.....	41.3	63.3	34.8	41.7
Dietary technicians.....	58.7	36.7	65.2	58.3
Medical record services.....	100.0	100.0	100.0	100.0
Medical record librarians.....	13.8	(¹)	13.1	14.7
Medical record technicians.....	14.7	17.0	12.2	15.6
Medical record clerks.....	71.5	74.6	74.7	69.7
Nursing services.....	100.0	100.0	100.0	100.0
Registered nurses.....	35.7	33.4	25.7	40.8
Practical or vocational nurses, licensed.....	15.8	11.5	14.7	16.9
Nursing aides, orderlies, and attendants.....	44.0	51.9	56.3	37.1
Ward clerks.....	4.5	3.2	3.3	5.2
Pharmacy.....	100.0	100.0	100.0	100.0
Pharmacists, licensed.....	57.8	49.2	60.5	58.3
Pharmacy assistants and aides.....	42.2	50.8	39.5	41.7
Radiologic technology.....	100.0	100.0	100.0	100.0
X-ray technologists-technicians.....	72.0	74.5	74.2	71.0
Nuclear medical and radiation therapy technologists-technicians.....	7.2	(¹)	6.6	7.4
Radiologic assistants.....	20.8	18.3	19.2	21.6
Therapeutic services.....	100.0	100.0	100.0	100.0
Occupational therapists.....	7.8	9.9	11.3	4.7
Occupational therapy assistants and aides.....	7.4	7.1	12.5	3.4
Physical therapists.....	12.5	13.5	7.5	16.0
Physical therapy assistants and aides.....	12.5	10.4	6.5	17.6
Speech pathologists and audiologists.....	2.5	(¹)	(¹)	3.5
Recreation therapists and aides.....	8.0	11.7	11.7	4.2
Inhalation therapists and aides.....	21.0	(¹)	8.4	34.5
Social workers.....	22.0	28.6	32.8	12.2
Social work assistants and aides.....	6.3	11.3	8.0	3.9

¹ Percent not calculated when number of personnel is less than 500.

Table 12. *Percent of personnel providing services in selected service categories in non-Federal hospitals in the United States, by type of hospital: 1969*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
Clinical laboratory services.....	100.0	100.0	100.0
Clinical laboratory scientists.....	4.3	(1)	(1)
Clinical laboratory technologists.....	45.7	50.0	47.7
Cytotechnologists-technicians.....	3.5	(1)	(1)
Histologic technicians and aides.....	5.3	(1)	(1)
Other clinical laboratory personnel.....	41.2	41.2	36.3
Dietary services.....	100.0	100.0	100.0
Dietitians.....	40.5	54.0	23.6
Dietary technicians.....	59.5	(1)	76.4
Medical record services.....	100.0	100.0	100.0
Medical record librarians.....	14.3	(1)	(1)
Medical record technicians.....	15.3	(1)	(1)
Medical record clerks.....	70.4	64.3	83.6
Nursing services.....	100.0	100.0	100.0
Registered nurses.....	39.6	20.5	14.3
Practical or vocational nurses, licensed.....	17.3	13.9	9.0
Nursing aides, orderlies, and attendants.....	37.8	64.5	75.6
Ward clerks.....	5.3	1.1	1.1
Pharmacy.....	100.0	100.0	100.0
Pharmacists, licensed.....	58.2	(1)	71.9
Pharmacy assistants and aides.....	41.8	(1)	(1)
Radiologic technology.....	100.0	100.0	100.0
X-ray technologists-technicians.....	71.1	84.0	96.0
Nuclear medical and radiation therapy technologists-technicians.....	7.3	(1)	(1)
Radiologic assistants.....	21.6	(1)	(1)
Therapeutic services.....	100.0	100.0	100.0
Occupational therapists.....	4.4	9.8	14.8
Occupational therapy assistants and aides.....	2.8	12.7	17.3
Physical therapists.....	16.5	14.5	(1)
Physical therapy assistants and aides.....	17.2	14.1	(1)
Speech pathologists and audiologists.....	3.0	(1)	(1)
Recreation therapists and aides.....	3.3	10.2	17.3
Inhalation therapists and aides.....	34.9	(1)	(1)
Social workers.....	13.6	25.0	39.4
Social work assistants and aides.....	4.3	(1)	8.9

¹ Percent not calculated when number of personnel is less than 500.

Table 13. *Percent of budgeted nursing positions vacant and percent of personnel providing nursing services in non-Federal hospitals in the United States, by category of personnel, ownership, and type of hospital: 1969*

Ownership and type of hospital	Registered nurses		Practical or vocational nurses, licensed		Nursing aides, orderlies, and attendants	
	Percent of budgeted positions vacant	Percent of nursing service personnel ¹	Percent of budgeted positions vacant	Percent of nursing service personnel ¹	Percent of budgeted positions vacant	Percent of nursing service personnel ¹
All non-Federal hospitals	7.9	35.9	7.6	16.2	3.2	43.3
Ownership of hospital:						
State and local government	12.6	25.7	10.0	14.8	3.3	56.2
Nongovernmental	6.3	40.8	6.6	16.9	3.0	37.1
Type of hospital:						
Community	7.0	39.6	6.5	17.3	3.2	37.8
Long stay general and special	24.6	20.5	24.3	13.9	5.8	64.5
Psychiatric	12.2	14.3	9.5	9.0	2.2	75.6

¹ Based on total personnel providing nursing services, which includes ward clerks in addition to the categories included in this table.

Table 14. *Average number of professional and technical health personnel per 100 beds in hospitals in the United States, by category of personnel and ownership of hospital: 1969*

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
All professional and technical	113.8	82.7	74.6	164.5
Physicians	6.9	10.2	5.2	7.5
Medical interns and residents	3.3	3.1	2.5	4.3
Other physicians	3.5	7.1	2.7	3.2
Dental services	0.9	4.5	0.4	0.3
Dental interns and residents	0.1	0.3	(1)	0.1
Other dentists	0.4	1.6	0.2	0.1
Dental hygienists, licensed	(²)	(1)	(1)	(1)
Dental assistants	0.3	2.0	0.1	(1)
Dental laboratory technicians	0.1	0.5	(1)	(1)
Clinical laboratory services	6.1	3.8	2.8	10.3
Clinical laboratory scientists	0.3	0.2	0.1	0.5
Clinical laboratory technologists	2.7	1.0	1.3	4.7
Cytotechnologists-technicians	0.2	(1)	0.1	0.4
Histologic technicians and aides	0.3	0.3	0.1	0.6
Other clinical laboratory personnel	2.6	2.2	1.2	4.2
Dietary services	1.9	1.0	1.2	2.8
Dietitians	0.8	0.6	0.4	1.2
Dietary technicians	1.1	0.4	0.8	1.6

Table 14.—Continued

Category of personnel	Total	Ownership of hospital		
		Federal	State and local government	Nongovernmental
Medical record services.....	2.8	1.7	1.8	4.2
Medical record librarians.....	0.4	(1)	0.2	0.6
Medical record technicians.....	0.4	0.3	0.2	0.7
Medical record clerks.....	2.0	1.3	1.4	2.9
Nursing services.....	78.5	43.8	53.1	115.9
Registered nurses.....	28.0	14.7	13.6	47.2
Practical or vocational nurses, licensed.....	12.5	5.1	7.8	19.6
Nursing aides, orderlies, and attendants.....	34.5	22.8	29.9	43.0
Ward clerks.....	3.5	1.4	1.8	6.0
Pharmacy.....	1.4	1.2	0.7	2.2
Pharmacists, licensed.....	0.8	0.6	0.4	1.3
Pharmacy assistants and aides.....	0.6	0.6	0.3	0.9
Radiologic technology.....	2.6	1.6	1.2	4.4
X-ray technologists-technicians.....	1.9	1.2	0.9	3.1
Nuclear medical and radiation therapy technologists-technicians.....	0.2	(1)	0.1	0.3
Radiologic assistants.....	0.5	0.3	0.2	0.9
Therapeutic services.....	4.2	3.6	3.7	5.0
Occupational therapists.....	0.3	0.4	0.4	0.2
Occupational therapy assistants and aides.....	0.3	0.3	0.5	0.2
Physical therapists.....	0.5	0.5	0.3	0.8
Physical therapy assistants and aides.....	0.5	0.4	0.2	0.9
Speech pathologists and audiologists.....	0.1	(1)	(1)	0.2
Recreation therapists and aides.....	0.3	0.4	0.4	0.2
Inhalation therapists and aides.....	0.9	(1)	0.3	1.7
Social workers.....	0.9	1.0	1.2	0.6
Social work assistants and aides.....	0.3	0.4	0.3	0.2
Other health professional and technical.....	8.5	11.3	4.3	11.9
Hospital administrators and assistants.....	1.0	0.9	0.6	1.6
Medical secretaries.....	1.5	1.8	0.8	2.0
Surgical aides.....	1.4	1.2	0.4	2.5
Obstetric, pediatric, and other physicians' aides.....	0.7	1.3	0.2	0.9
Electrocardiographic technicians.....	0.6	0.7	0.2	0.9
Electroencephalograph and other medical machine technicians.....	0.2	(1)	0.1	0.3
Ambulance drivers and attendants.....	0.3	0.8	0.4	0.2
Personnel in other health occupations.....	1.3	3.0	0.8	1.3
Trainees not elsewhere reported.....	1.5	1.4	0.8	2.3

NOTE.—Column figures may not add to totals and subtotals due to rounding.

¹ Rate not calculated when number of personnel is less than 500.² Less than 0.05 per 100 beds.

Table 15. *Average number of professional and technical health personnel per 100 beds in non-Federal hospitals in the United States, by category of personnel and type of hospital: 1969*

Category of personnel	Community	Long stay	
		General and special	Psychiatric
All professional and technical.....	164.9	64.5	41.4
Physicians.....	8.6	3.0	2.9
Medical interns and residents.....	5.2	(1)	0.7
Other physicians.....	3.4	2.7	2.2
Dental services.....	0.3	0.6	0.2
Dental interns and residents.....	0.1	(1)	(1)
Other dentists.....	0.2	(1)	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)
Dental assistants.....	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)
Clinical laboratory services.....	10.2	1.6	0.4
Clinical laboratory scientists.....	0.4	(1)	(1)
Clinical laboratory technologists.....	4.7	0.8	0.2
Cytotechnologists-technicians.....	0.4	(1)	(1)
Histologic technicians and aides.....	0.5	(1)	(1)
Other clinical laboratory personnel.....	4.2	0.6	0.1
Dietary services.....	2.9	0.9	0.5
Dietitians.....	1.2	0.5	0.1
Dietary technicians.....	1.7	(1)	0.4
Medical record services.....	4.3	1.4	0.8
Medical record librarians.....	0.6	(1)	(1)
Medical record technicians.....	0.7	(1)	(1)
Medical record clerks.....	3.0	0.9	0.7
Nursing services.....	115.5	48.4	30.7
Registered nurses.....	45.7	9.9	4.4
Practical or vocational nurses, licensed.....	20.0	6.7	2.8
Nursing aides, orderlies, and attendants.....	43.7	31.2	23.2
Ward clerks.....	6.1	0.5	0.3
Pharmacy.....	2.2	0.5	0.2
Pharmacists, licensed.....	1.3	(1)	0.1
Pharmacy assistants and aides.....	0.9	(1)	(1)

Table 15.—Continued

Category of personnel	Community	Long stay	
		General and special	Psychiatric
Radiologic technology.....	4.4	0.7	0.1
X-ray technologists-technicians.....	3.1	0.6	0.1
Nuclear medical and radiation therapy technologists-technicians.....	0.3	(1)	(1)
Radiologic assistants.....	1.0	(1)	(1)
Therapeutic services.....	4.6	4.4	3.6
Occupational therapists.....	0.2	0.4	0.5
Occupational therapy assistants and aides.....	0.1	0.6	0.6
Physical therapists.....	0.8	0.6	(1)
Physical therapy assistants and aides.....	0.8	0.6	(1)
Speech pathologists and audiologists.....	0.1	(1)	(1)
Recreation therapists and aides.....	0.2	0.4	0.6
Inhalation therapists and aides.....	1.6	(1)	(1)
Social workers.....	0.6	1.1	1.4
Social work assistants and aides.....	0.2	(1)	0.3
Other health professional and technical.....	11.8	3.1	1.9
Hospital administrators and assistants.....	1.5	0.9	0.2
Medical secretaries.....	1.9	0.5	0.6
Surgical aides.....	2.4	(1)	(1)
Obstetric, pediatric, and other physicians' aides.....	0.9	(1)	(1)
Electrocardiographic technicians.....	0.8	(1)	(1)
Electroencephalograph and other medical machine technicians.....	0.3	(1)	(1)
Ambulance drivers and attendants.....	0.4	(1)	(1)
Personnel in other health occupations.....	1.3	0.8	0.6
Trainees not elsewhere reported.....	2.3	(1)	0.3

NOTE.—Column figures may not add to totals and subtotals due to rounding.

¹ Rate not calculated when number of personnel is less than 500.

Table 16. *Number of professional and technical health personnel employed in community hospitals in the United States, by category of personnel and geographic region: 1969*

Category of personnel	All regions	Northeast	North Central	South	West.
All professional and technical.....	1,434,100	388,000	438,500	395,200	212,400
Physicians:					
Medical interns and residents.....	44,900	16,100	13,900	11,100	3,800
Other physicians.....	29,500	11,300	4,500	11,200	2,500
Dental services:					
Dental interns and residents.....	800	(1)	(1)	(1)	(1)
Other dentists.....	1,500	500	(1)	800	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)	(1)	(1)
Dental assistants.....	500	(1)	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services:					
Clinical laboratory scientists.....	3,800	1,500	900	700	700
Clinical laboratory technologists.....	40,600	10,200	12,400	11,200	6,800
Cytotechnologists-technicians.....	3,100	1,100	700	800	500
Histologic technicians and aides.....	4,700	1,400	1,400	1,300	600
Other clinical laboratory personnel.....	36,600	11,500	11,600	10,300	3,200
Dietary services:					
Dietitians.....	10,200	2,700	3,000	2,900	1,600
Dietary technicians.....	14,900	3,900	4,100	4,900	2,000
Medical record services:					
Medical record librarians.....	5,400	1,100	1,500	1,800	1,000
Medical record technicians.....	5,800	1,400	1,700	1,500	1,200
Medical record clerks.....	26,500	7,200	7,800	6,700	4,800
Nursing services:					
Registered nurses.....	397,700	123,300	118,800	86,500	69,100
Practical or vocational nurses, licensed.....	173,900	43,800	49,300	57,200	23,600
Nursing aides, orderlies, and attendants.....	379,600	82,700	128,700	114,300	53,900
Ward clerks.....	52,800	12,800	17,600	15,500	6,900
Pharmacy:					
Pharmacists, licensed.....	11,400	2,600	3,500	3,000	2,300
Pharmacy assistants and aides.....	8,200	1,800	2,600	2,800	1,000
Radiologic technology:					
X-ray technologists-technicians.....	27,300	7,600	7,900	7,500	4,300
Nuclear medical and radiation therapy technologists-technicians.....	2,800	900	700	700	500
Radiologic assistants.....	8,300	2,100	2,600	2,500	1,100
Therapeutic services:					
Occupational therapists.....	1,800	(1)	700	(1)	(1)
Occupational therapy assistants and aides.....	1,100	(1)	500	(1)	(1)
Physical therapists.....	6,600	1,800	2,200	1,400	1,200
Physical therapy assistants and aides.....	7,000	1,300	2,900	1,700	1,100
Speech pathologists and audiologists.....	1,200	500	(1)	(1)	(1)
Recreation therapists and aides.....	1,300	(1)	600	(1)	(1)
Inhalation therapists and aides.....	14,100	3,400	4,300	3,800	2,600
Social workers.....	5,500	2,200	1,400	700	1,200
Social work assistants and aides.....	1,700	700	(1)	(1)	(1)

Table 16.—*Continued*

Category of personnel		All regions	Northeast	North Central	South	West
Other health professional and technical:						
Hospital administrators and assistants	13,200	3,100	3,600	4,300	2,200	
Medical secretaries	16,600	5,200	4,100	4,900	2,400	
Surgical aides	20,500	4,300	6,000	8,000	2,200	
Obstetric, pediatric, and other physicians' aides	8,100	1,900	2,900	2,700	600	
Electrocardiographic technicians	7,400	2,200	2,000	2,000	1,200	
Electroencephalograph and other medical machine technicians	2,400	700	700	700	(¹)	
Ambulance drivers and attendants	3,300	1,400	900	(¹)	600	
Personnel in other health occupations	11,500	4,600	3,400	2,500	1,000	
Trainees not elsewhere reported	19,900	5,500	6,300	5,500	2,600	

NOTE.—Column figures may not add to totals due to rounding.

¹ Figures less than 500 not shown.

Table 17. *Percent of professional and technical health personnel employed full time in community hospitals in the United States, by category of personnel and geographic region: 1969*

Category of personnel	All regions	Northeast	North Central	South	West
All professional and technical.....	76.7	74.0	72.6	83.7	78.8
Physicians:					
Medical interns and residents.....	95.5	95.0	95.1	95.9	97.8
Other physicians.....	55.9	57.6	64.3	50.2	78.3
Dental services:					
Dental interns and residents.....	98.1	(1)	(1)	(1)	(1)
Other dentists.....	37.5	26.5	(1)	48.0	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)	(1)	(1)
Dental assistants.....	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services:					
Clinical laboratory scientists.....	82.7	92.5	84.1	67.6	74.4
Clinical laboratory technologists.....	80.2	78.2	77.3	84.3	81.5
Cytotechnologists-technicians.....	82.2	77.8	89.7	86.7	74.6
Histologic technicians and aides.....	86.3	88.7	84.9	88.5	82.1
Other clinical laboratory personnel.....	73.2	75.3	70.4	75.5	72.1
Dietary services:					
Dietitians.....	71.0	79.2	64.2	73.3	67.4
Dietary technicians.....	88.9	89.5	84.6	92.8	88.7
Medical record services:					
Medical record librarians.....	84.5	88.2	82.6	80.1	92.1
Medical record technicians.....	88.4	85.9	88.8	93.9	84.6
Medical record clerks.....	81.3	82.9	76.7	85.3	81.4
Nursing services:					
Registered nurses.....	66.0	62.7	60.6	74.8	71.3
Practical or vocational nurses, licensed.....	81.1	74.8	77.2	88.2	83.7
Nursing aides, orderlies, and attendants.....	80.5	78.7	73.3	89.2	82.9
Ward clerks.....	83.3	76.4	81.3	89.8	86.5
Pharmacy:					
Pharmacists, licensed.....	69.5	76.2	71.1	62.8	70.0
Pharmacy assistants and aides.....	68.7	72.0	67.9	73.9	55.6
Radiologic technology:					
X-ray technologists-technicians.....	84.0	85.8	83.5	85.3	80.3
Nuclear medical and radiation therapy technologists-technicians.....	90.5	92.2	85.8	91.9	(1)
Radiologic assistants.....	80.1	84.8	78.5	79.4	78.9
Therapeutic services:					
Occupational therapists.....	76.7	(1)	79.7	(1)	(1)
Occupational therapy assistants and aides.....	79.2	(1)	(1)	(1)	(1)
Physical therapists.....	71.5	73.0	64.9	79.1	74.2
Physical therapy assistants and aides.....	79.1	78.5	77.7	88.4	71.0
Speech pathologists and audiologists.....	61.7	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	70.3	(1)	61.7	(1)	(1)
Inhalation therapists and aides.....	87.2	85.3	83.7	92.8	87.6
Social workers.....	87.1	85.0	88.0	90.8	88.1
Social work assistants and aides.....	91.9	91.7	(1)	(1)	(1)

Table 17.—*Continued*

Category of personnel	All regions	Northeast	North Central	South	West
Other health professional and technical:					
Hospital administrators and assistants	97.2	98.5	97.0	96.2	97.8
Medical secretaries	86.7	90.5	84.4	89.2	79.6
Surgical aides	90.5	90.5	90.3	90.7	92.0
Obstetric, pediatric, and other physicians' aides	88.4	84.2	88.8	92.9	83.9
Electrocardiographic technicians	79.4	78.6	75.3	83.5	82.6
Electroencephalograph and other medical machine technicians	84.9	80.3	88.0	92.2	(¹)
Ambulance drivers and attendants	66.1	86.7	56.4	(¹)	40.0
Personnel in other health occupations	80.2	81.6	79.1	81.8	74.4
Trainees not elsewhere reported	72.9	74.4	70.6	76.8	70.4

¹ Percent not calculated when base is less than 500.

Table 18. *Percent of budgeted positions vacant in community hospitals in the United States, by category of personnel and geographic region: 1969*

Category of personnel	All regions	Northeast	North Central	South	West
All professional and technical	5.1	5.3	5.5	4.9	4.2
Physicians:					
Medical interns and residents	7.3	8.9	5.6	6.1	9.8
Other physicians	3.0	2.5	4.9	2.0	5.3
Dental services:					
Dental interns and residents	2.4	(1)	(1)	(1)	(1)
Other dentists	0.7	(1)	(1)	0	(1)
Dental hygienists, licensed	(1)	(1)	(1)	(1)	(1)
Dental assistants	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services:					
Clinical laboratory scientists	3.1	3.6	4.6	1.1	1.9
Clinical laboratory technologists	5.4	4.8	5.6	6.7	3.8
Cytotechnologists-technicians	4.8	3.6	7.2	4.4	4.7
Histologic technicians and aides	3.0	3.6	2.0	4.3	0.9
Other clinical laboratory personnel	2.9	2.8	2.0	3.7	3.1
Dietary services:					
Dietitians	6.1	6.9	7.4	5.5	3.5
Dietary technicians	2.1	2.3	3.0	1.8	0.9
Medical record services:					
Medical record librarians	6.2	8.4	7.3	5.0	4.1
Medical record technicians	3.8	4.7	6.3	2.4	0.7
Medical record clerks	3.0	3.8	3.0	2.4	2.4
Nursing services:					
Registered nurses	7.0	6.5	7.6	8.8	4.7
Practical or vocational nurses, licensed	6.5	6.8	7.6	5.7	5.7
Nursing aides, orderlies, and attendants	3.2	3.3	3.6	2.5	3.4
Ward clerks	4.5	4.7	5.0	4.1	3.7
Pharmacy:					
Pharmacists, licensed	5.3	6.0	6.7	4.4	3.3
Pharmacy assistants and aides	2.9	3.4	3.1	2.6	2.7
Radiologic technology:					
X-ray technologists-technicians	4.4	5.0	4.1	5.2	2.6
Nuclear medical and radiation therapy technologists-tech- nicians	4.8	4.5	8.1	3.7	(1)
Radiologic assistants	1.6	2.2	2.1	1.2	0.3
Therapeutic services:					
Occupational therapists	15.4	(1)	14.9	(1)	(1)
Occupational therapy assistants and aides	7.8	(1)	(1)	(1)	(1)
Physical therapists	14.0	14.2	16.8	15.6	6.5
Physical therapy assistants and aides	3.6	3.5	4.5	3.6	1.3
Speech pathologists and audiologists	5.0	(1)	(1)	(1)	(1)
Recreation therapists and aides	5.0	(1)	(1)	(1)	(1)
Inhalation therapists and aides	5.9	5.9	5.4	6.1	6.5
Social workers	10.6	11.3	6.6	17.8	8.8
Social work assistants and aides	6.1	4.0	(1)	(1)	(1)

Table 18.—*Continued*

Category of personnel	All regions	Northeast	North Central	South	West
Other health professional and technical:					
Hospital administrators and assistants.....	3.1	2.5	4.1	2.9	2.6
Medical secretaries.....	3.1	4.2	2.9	2.7	1.8
Surgical aides.....	3.4	3.0	4.5	3.1	2.6
Obstetric, pediatric, and other physicians' aides.....	2.1	2.2	2.4	1.7	1.4
Electrocardiographic technicians.....	1.7	2.0	3.2	0.9	0
Electroencephalograph and other medical machine technicians.....	4.0	2.8	7.2	2.5	(¹)
Ambulance drivers and attendants.....	2.2	1.9	(¹)	(¹)	0.2
Personnel in other health occupations.....	3.1	3.9	2.5	2.5	2.7
Trainees not elsewhere reported.....	3.8	4.0	4.4	4.0	1.4

¹ Percent not calculated when base is less than 500.

Table 19. *Average number of professional and technical health personnel per 100 beds in community hospitals in the United States, by category of personnel and geographic region: 1969*

Category of personnel	All regions	Northeast	North Central	South	West
All professional and technical.....	164.9	176.8	161.9	156.7	167.1
Physicians.....	8.6	12.5	6.8	8.8	4.9
Medical interns and residents.....	5.2	7.4	5.1	4.4	3.0
Other physicians.....	3.4	5.1	1.7	4.4	1.9
Dental services.....	0.3	0.5	(1)	0.5	(1)
Dental interns and residents.....	0.1	(1)	(1)	(1)	(1)
Other dentists.....	0.2	(1)	(1)	0.3	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)	(1)	(1)
Dental assistants.....	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services.....	10.2	11.8	10.0	9.6	9.3
Clinical laboratory scientists.....	0.4	0.7	0.3	0.3	0.5
Clinical laboratory technologists.....	4.7	4.6	4.6	4.4	5.4
Cytotechnologists-technicians.....	0.4	0.5	0.3	0.3	0.4
Histologic technicians and aides.....	0.5	0.7	0.5	0.5	0.5
Other clinical laboratory personnel.....	4.2	5.3	4.3	4.1	2.5
Dietary services.....	2.9	3.0	2.6	3.1	2.8
Dietitians.....	1.2	1.2	1.1	1.1	1.2
Dietary technicians.....	1.7	1.8	1.5	2.0	1.6
Medical record services.....	4.3	4.4	4.0	4.0	5.5
Medical record librarians.....	0.6	0.5	0.5	0.7	0.8
Medical record technicians.....	0.7	0.6	0.6	0.6	1.0
Medical record clerks.....	3.0	3.3	2.9	2.7	3.7
Nursing services.....	115.5	119.7	116.1	108.4	120.8
Registered nurses.....	45.7	56.2	43.9	34.3	54.4
Practical or vocational nurses, licensed.....	20.0	20.0	18.2	22.6	18.6
Nursing aides, orderlies, and attendants.....	43.7	37.7	47.5	45.3	42.4
Ward clerks.....	6.1	5.8	6.5	6.2	5.4
Pharmacy.....	2.2	2.0	2.2	2.3	2.6
Pharmacists, licensed.....	1.3	1.2	1.3	1.2	1.8
Pharmacy assistants and aides.....	0.9	0.8	0.9	1.1	0.8

Table 19.—Continued

Category of personnel	All regions	Northeast	North Central	South	West
Radiologic technology.....	4.4	4.8	4.1	4.3	4.5
X-ray technologists-technicians.....	3.1	3.5	2.9	3.0	3.4
Nuclear medical and radiation therapy technologists-technicians.....	0.3	0.4	0.3	0.3	(1)
Radiologic assistants.....	1.0	0.9	0.9	1.0	0.8
Therapeutic services.....	4.6	4.9	4.8	3.4	6.3
Occupational therapists.....	0.2	(1)	0.2	(1)	(1)
Occupational therapy assistants and aides.....	0.1	(1)	(1)	(1)	(1)
Physical therapists.....	0.8	0.8	0.8	0.6	1.0
Physical therapy assistants and aides.....	0.8	0.6	1.1	0.7	0.9
Speech pathologists and audiologists.....	0.1	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	0.2	(1)	(1)	(1)	(1)
Inhalation therapists and aides.....	1.6	1.5	1.6	1.5	2.0
Social workers.....	0.6	1.0	0.5	0.3	1.0
Social work assistants and aides.....	0.2	0.3	(1)	(1)	(1)
Other health professional and technical.....	11.8	13.2	11.0	12.3	10.3
Hospital administrators and assistants.....	1.5	1.4	1.3	1.7	1.7
Medical secretaries.....	1.9	2.4	1.5	1.9	1.9
Surgical aides.....	2.1	2.0	2.2	3.2	1.7
Obstetric, pediatric, and other physicians' aides.....	0.9	0.9	1.1	1.1	0.5
Electrocardiographic technicians.....	0.8	1.0	0.7	0.8	0.9
Electroencephalograph and other medical machine technicians.....	0.3	0.3	0.3	0.3	(1)
Ambulance drivers and attendants.....	0.4	0.6	0.3	(1)	0.5
Personnel in other health occupations.....	1.3	2.1	1.3	1.0	0.7
Trainees not elsewhere reported.....	2.3	2.5	2.3	2.2	2.0

¹ Rate not calculated when number of personnel is less than 500.

Table 20. *Percent distribution of professional and technical health personnel by category in community hospitals in the United States, by geographic region: 1969*

Category of personnel	All regions	Northeast	North Central	South	West
All professional and technical.....	100.0	100.0	100.0	100.0	100.0
Physicians.....	5.2	7.0	4.2	5.6	2.9
Medical interns and residents.....	3.1	4.1	3.2	2.8	1.8
Other physicians.....	2.1	2.9	1.0	2.8	1.1
Dental services.....	0.2	0.3	(1)	0.4	(1)
Dental interns and residents.....	0.1	(1)	(1)	(1)	(1)
Other dentists.....	0.1	0.1	(1)	0.2	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)	(1)	(1)
Dental assistants.....	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services.....	6.2	6.7	6.2	6.1	5.6
Clinical laboratory scientists.....	0.3	0.4	0.2	0.2	0.3
Clinical laboratory technologists.....	2.8	2.6	2.8	2.8	3.2
Cytotechnologists-technicians.....	0.2	0.3	0.2	0.2	0.3
Histologic technicians and aides.....	0.3	0.4	0.3	0.3	0.3
Other clinical laboratory personnel.....	2.6	3.0	2.7	2.6	1.5
Dietary services.....	1.7	1.7	1.6	2.0	1.7
Dietitians.....	0.7	0.7	0.7	0.7	0.8
Dietary technicians.....	1.0	1.0	0.9	1.3	0.9
Medical record services.....	2.6	2.5	2.5	2.5	3.3
Medical record librarians.....	0.4	0.3	0.3	0.4	0.5
Medical record technicians.....	0.4	0.3	0.4	0.4	0.6
Medical record clerks.....	1.8	1.9	1.8	1.7	2.2
Nursing services.....	70.0	67.7	71.7	69.2	72.2
Registered nurses.....	27.7	31.8	27.1	21.9	32.5
Practical or vocational nurses, licensed.....	12.1	11.3	11.3	14.5	11.1
Nursing aides, orderlies, and attendants.....	26.5	21.3	29.3	28.9	25.4
Ward clerks.....	3.7	3.3	4.0	3.9	3.2
Pharmacy.....	1.4	1.1	1.4	1.5	1.6
Pharmacists, licensed.....	0.8	0.7	0.8	0.8	1.1
Pharmacy assistants and aides.....	0.6	0.4	0.6	0.7	0.5

Table 20.—Continued

Category of personnel	All regions	Northeast	North Central	South	West
Radiologic technology.....	2.7	2.7	2.6	2.7	2.7
X-ray technologists-technicians.....	1.9	2.0	1.8	1.9	2.0
Nuclear medical and radiation therapy technologists-technicians.....	0.2	0.2	0.2	0.2	(1)
Radiologic assistants.....	0.6	0.5	0.6	0.6	0.5
Therapeutic services.....	2.8	2.8	3.0	2.2	3.7
Occupational therapists.....	0.1	(1)	0.2	(1)	(1)
Occupational therapy assistants and aides.....	0.1	(1)	(1)	(1)	(1)
Physical therapists.....	0.4	0.5	0.5	0.4	0.6
Physical therapy assistants and aides.....	0.5	0.3	0.7	0.4	0.5
Speech pathologists and audiologists.....	0.1	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	0.1	(1)	0.1	(1)	(1)
Inhalation therapists and aides.....	1.0	0.9	1.0	1.0	1.2
Social workers.....	0.4	0.6	0.3	0.2	0.6
Social work assistants and aides.....	0.1	0.2	(1)	(1)	(1)
Other health professional and technical.....	7.2	7.5	6.8	7.8	6.2
Hospital administrators and assistants.....	0.9	0.8	0.8	1.1	1.1
Medical secretaries.....	1.2	1.3	0.9	1.2	1.1
Surgical aides.....	1.4	1.1	1.4	2.0	1.0
Obstetric, pediatric, and other physicians' aides.....	0.6	0.5	0.7	0.7	0.3
Electrocardiographic technicians.....	0.5	0.6	0.5	0.5	0.6
Electroencephalograph and other medical machine technicians.....	0.2	0.2	0.1	0.2	(1)
Ambulance drivers and attendants.....	0.2	0.4	0.2	(1)	0.3
Personnel in other health occupations.....	0.8	1.2	0.8	0.6	0.4
Trainees not elsewhere reported.....	1.4	1.4	1.4	1.4	1.2

¹ Percent not calculated when number of personnel is less than 500.

Table 21. *Percent of personnel providing services in selected service categories in community hospitals in the United States, by geographic region: 1969*

Category of personnel	All regions	Northeast	North Central	South	West
Clinical laboratory services.....	100.0	100.0	100.0	100.0	100.0
Clinical laboratory scientists.....	4.3	6.0	3.2	2.8	5.9
Clinical laboratory technologists.....	45.7	39.5	45.9	46.2	57.7
Cytotechnologists-technicians.....	3.5	4.3	2.4	3.4	4.3
Histologic technicians and aides.....	5.3	5.6	5.4	5.2	4.9
Other clinical laboratory personnel.....	41.2	44.6	43.1	42.4	27.2
Dietary services.....	100.0	100.0	100.0	100.0	100.0
Dietitians.....	40.5	41.1	42.0	36.7	44.5
Dietary technicians.....	59.5	58.9	58.0	63.3	55.5
Medical record services.....	100.0	100.0	100.0	100.0	100.0
Medical record librarians.....	14.3	11.3	13.9	17.9	13.8
Medical record technicians.....	15.3	14.3	15.0	15.3	17.5
Medical record clerks.....	70.4	74.4	71.1	66.8	68.7
Nursing services.....	100.0	100.0	100.0	100.0	100.0
Registered nurses.....	39.6	46.9	37.8	31.6	45.0
Practical or vocational nurses, licensed.....	17.3	16.7	15.7	20.9	15.4
Nursing aides, orderlies, and attendants.....	37.8	31.5	40.9	41.8	35.1
Ward clerks.....	5.3	4.9	5.6	5.7	4.5
Pharmacy.....	100.0	100.0	100.0	100.0	100.0
Pharmacists, licensed.....	58.2	59.0	57.4	52.1	69.3
Pharmacy assistants and aides.....	41.8	41.0	42.6	47.9	30.7
Radiologic technology.....	100.0	100.0	100.0	100.0	100.0
X-ray technologists-technicians.....	71.1	71.9	70.6	69.4	73.7
Nuclear medical and radiation therapy technologists-technicians.....	7.3	8.5	6.3	7.0	(1)
Radiologic assistants.....	2.16	19.6	23.1	23.6	18.5
Therapeutic services.....	100.0	100.0	100.0	100.0	100.0
Occupational therapists.....	4.4	(1)	5.0	(1)	(1)
Occupational therapy assistants and aides.....	2.8	(1)	(1)	(1)	(1)
Physical therapists.....	16.5	16.3	16.7	16.9	15.8
Physical therapy assistants and aides.....	17.2	11.8	22.1	19.6	14.1
Speech pathologists and audiologists.....	3.0	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	3.3	(1)	(1)	(1)	(1)
Inhalation therapists and aides.....	34.9	30.9	33.1	44.9	32.3
Social workers.....	13.6	20.2	10.4	8.3	15.5
Social work assistants and aides.....	4.3	6.5	(1)	(1)	(1)

¹ Percent not calculated when number of personnel is less than 500.

Table 22. *Number of professional and technical health personnel employed in community hospitals in the United States, by category of personnel and bed size of hospital: 1969*

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
All professional and technical.....	1,434,100	262,200	281,000	591,500	299,300
Physicians:					
Medical interns and residents.....	44,900	1,700	2,200	19,100	21,900
Other physicians.....	29,500	2,400	2,700	15,100	9,200
Dental services:					
Dental interns and residents.....	800	(1)	(1)	(1)	(1)
Other dentists.....	1,500	(1)	(1)	1,000	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)	(1)	(1)
Dental assistants.....	500	(1)	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services:					
Clinical laboratory scientists.....	3,800	(1)	600	1,300	1,600
Clinical laboratory technologists.....	40,600	6,500	6,100	18,300	9,700
Cytotechnologists-technicians.....	3,100	(1)	500	1,600	600
Histologic technicians and aides.....	4,700	(1)	700	2,400	1,400
Other clinical laboratory personnel.....	36,600	5,000	6,300	16,300	9,000
Dietary services:					
Dietitians.....	10,200	2,900	1,700	3,400	2,200
Dietary technicians.....	14,900	4,300	2,400	4,900	3,300
Medical record services:					
Medical record librarians.....	5,400	2,200	1,300	1,400	500
Medical record technicians.....	5,800	2,000	1,200	2,000	600
Medical record clerks.....	26,500	4,700	5,200	10,700	5,900
Nursing services:					
Registered nurses.....	397,700	61,900	84,900	177,200	73,700
Practical or vocational nurses, licensed.....	173,900	37,000	38,300	67,100	31,500
Nursing aides, orderlies, and attendants.....	379,600	92,300	81,600	138,800	66,900
Ward clerks.....	52,800	5,000	9,200	24,700	13,900
Pharmacy:					
Pharmacists, licensed.....	11,400	2,600	2,300	4,400	2,100
Pharmacy assistants and aides.....	8,200	1,100	1,700	3,600	1,800
Radiologic technology:					
X-ray technologists-technicians.....	27,300	6,400	5,600	10,400	4,900
Nuclear medical and radiation therapy technologists-technicians.....	2,800	(1)	(1)	1,500	800
Radiologic assistants.....	8,300	1,600	1,900	3,200	1,600
Therapeutic services:					
Occupational therapists.....	1,800	(1)	(1)	600	600
Occupational therapy assistants and aides....	1,100	(1)	(1)	(1)	(1)
Physical therapists.....	6,600	1,300	1,200	2,800	1,300
Physical therapy assistants and aides.....	7,000	1,100	1,400	3,400	1,100
Speech pathologists and audiologists.....	1,200	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	1,300	(1)	(1)	(1)	(1)
Inhalation therapists and aides.....	14,100	1,000	2,400	7,700	2,900
Social workers.....	5,500	(1)	700	2,100	2,300
Social work assistants and aides.....	1,700	(1)	(1)	700	800

Table 22—Continued

Category of personnel		All sizes	Bed size of hospital			
			Less than 100	100-199	200-499	500 and more
Other health professional and technical:						
Hospital administrators and assistants	13,200	5,000	2,600	3,700	1,900	
Medical secretaries	16,600	2,100	2,900	8,000	3,600	
Surgical aides	20,500	3,600	4,100	9,000	3,800	
Obstetric, pediatric, and other physicians' aides	8,100	1,000	2,200	3,600	1,300	
Electrocardiographic technicians	7,400	1,300	1,200	3,400	1,500	
Electroencephalograph and other medical machine technicians	2,400	(1)	(1)	1,100	700	
Ambulance drivers and attendants	3,300	1,100	(1)	800	1,000	
Personnel in other health occupations	11,500	600	1,700	5,000	4,200	
Trainees not elsewhere reported	19,900	1,500	2,100	9,200	7,100	

NOTE.—Column figures may not add to totals due to rounding.

¹ Figures less than 500 not shown.Table 23. *Percent of professional and technical health personnel employed full time in community hospitals in the United States, by category of personnel and bed size of hospital: 1969*

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
All professional and technical	76.7	71.0	75.2	76.0	84.7
Physicians:					
Medical interns and residents	95.5	83.0	75.9	94.2	99.6
Other physicians	55.9	47.5	76.5	48.7	64.0
Dental services:					
Dental interns and residents	98.1	(1)	(1)	(1)	(1)
Other dentists	37.5	(1)	(1)	31.4	(1)
Dental hygienists, licensed	(1)	(1)	(1)	(1)	(1)
Dental assistants	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services:					
Clinical laboratory scientists	82.7	(1)	86.3	86.8	83.1
Clinical laboratory technologists	80.2	76.9	77.9	79.6	84.9
Cytotechnologists-technicians	82.2	(1)	70.1	83.0	92.1
Histologic technicians and aides	86.3	(1)	86.5	85.1	88.3
Other clinical laboratory personnel	73.2	70.2	75.4	71.8	75.9
Dietary services:					
Dietitians	71.0	41.3	74.8	84.0	88.0
Dietary technicians	88.9	79.4	93.7	92.7	92.6
Medical record services:					
Medical record librarians	84.5	73.4	88.9	94.0	(1)
Medical record technicians	88.4	87.1	85.9	90.1	92.3
Medical record clerks	81.3	75.8	78.1	81.4	88.2

Table 23.—Continued

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
Nursing services:					
Registered nurses.....	66.0	63.2	63.7	63.9	76.2
Practical or vocational nurses, licensed.....	81.1	77.4	80.8	80.7	86.5
Nursing aides, orderlies, and attendants.....	80.5	73.1	80.0	82.1	88.1
Ward clerks.....	83.3	80.9	81.5	81.6	88.2
Pharmacy:					
Pharmacists, licensed.....	69.5	32.8	71.4	81.4	88.3
Pharmacy assistants and aides.....	68.7	48.5	64.2	69.8	82.6
Radiologic technology:					
X-ray technologists-technicians.....	84.0	76.6	81.0	86.9	90.7
Nuclear medical and radiation therapy technologists-technicians.....	90.5	(1)	(1)	91.5	93.8
Radiologic assistants.....	80.1	66.5	77.0	83.5	90.9
Therapeutic services:					
Occupational therapists.....	76.7	(1)	(1)	76.7	87.2
Occupational therapy assistants and aides.....	79.2	(1)	(1)	(1)	(1)
Physical therapists.....	71.5	36.4	73.4	78.9	87.3
Physical therapy assistants and aides.....	79.1	64.9	74.0	83.5	86.4
Speech pathologists and audiologists.....	61.7	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	70.3	(1)	(1)	(1)	(1)
Inhalation therapists and aides.....	87.2	75.5	85.7	88.5	89.4
Social workers.....	87.1	(1)	84.1	83.8	91.1
Social work assistants and aides.....	91.9	(1)	(1)	94.8	95.5
Other health professional and technical:					
Hospital administrators and assistants.....	97.2	94.8	98.6	98.4	99.1
Medical secretaries.....	86.7	82.9	84.2	86.8	90.8
Surgical aides.....	90.5	86.9	89.9	91.4	92.4
Obstetric, pediatric, and other physicians' aides.....	88.4	84.5	86.1	89.4	92.3
Electrocardiographic technicians.....	79.4	66.2	76.4	81.4	89.0
Electroencephalograph and other medical machine technicians.....	84.9	(1)	(1)	87.4	92.5
Ambulance drivers and attendants.....	66.1	18.5	(1)	87.0	94.2
Personnel in other health occupations.....	80.2	68.3	66.7	83.5	83.8
Trainees not elsewhere reported.....	72.9	78.5	81.3	64.2	80.6

¹ Percent not calculated when base is less than 500.

Table 24. *Percent of budgeted positions vacant in community hospitals in the United States, by category of personnel and bed size of hospital: 1969*

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
All professional and technical	5.1	3.3	4.2	5.4	6.6
Physicians:					
Medical interns and residents	7.3	2.5	31.5	7.5	4.3
Other physicians	3.0	2.9	6.0	2.3	3.1
Dental services:					
Dental interns and residents	2.4	(1)	(1)	(1)	(1)
Other dentists	0.7	(1)	(1)	(1)	(1)
Dental hygienists, licensed	(1)	(1)	(1)	(1)	(1)
Dental assistants	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services:					
Clinical laboratory scientists	3.1	(1)	3.3	4.4	2.5
Clinical laboratory technologists	5.4	3.9	5.0	5.2	7.0
Cytotechnologists-technicians	4.8	(1)	8.1	4.1	6.2
Histologic technicians and aides	3.0	(1)	0.6	3.3	3.2
Other clinical laboratory personnel	2.9	2.9	3.0	2.7	3.1
Dietary services:					
Dietitians	6.1	5.6	2.5	7.2	7.7
Dietary technicians	2.1	0.3	1.9	2.1	4.6
Medical record services:					
Medical record librarians	6.2	6.1	4.1	6.5	10.6
Medical record technicians	3.8	2.9	5.4	3.2	5.2
Medical record clerks	3.0	1.3	1.1	3.3	5.1
Nursing services:					
Registered nurses	7.0	5.6	5.5	7.2	9.4
Practical or vocational nurses, licensed	6.5	5.5	4.5	6.9	9.2
Nursing aides, orderlies, and attendants	3.2	1.1	2.3	4.0	5.0
Ward clerks	4.5	1.3	2.9	4.3	5.8
Pharmacy:					
Pharmacists, licensed	5.3	4.5	5.6	5.0	6.3
Pharmacy assistants and aides	2.9	0	1.9	3.9	3.5
Radiologic technology:					
X-ray technologists-technicians	4.4	1.8	3.6	5.5	6.0
Nuclear medical and radiation therapy technologists-technicians	4.8	(1)	(1)	2.7	10.2
Radiologic assistants	1.6	1.5	0.5	1.6	3.0
Therapeutic services:					
Occupational therapists	15.4	(1)	(1)	16.0	16.5
Occupational therapy assistants and aides	7.8	(1)	(1)	(1)	(1)
Physical therapists	14.0	10.7	8.7	16.3	15.6
Physical therapy assistants and aides	3.6	5.0	4.6	2.4	4.9
Speech pathologists and audiologists	5.0	(1)	(1)	(1)	(1)
Recreation therapists and aides	5.0	(1)	(1)	(1)	(1)
Inhalation therapists and aides	5.9	8.1	5.7	5.3	6.8
Social workers	10.6	(1)	18.3	8.0	8.6
Social work assistants and aides	6.1	(1)	(1)	2.9	4.4

Table 24.—*Continued*

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
Other health professional and technical:					
Hospital administrators and assistants.....	3.1	1.5	5.5	3.2	3.5
Medical secretaries.....	3.1	0	1.9	4.0	4.0
Surgical aides.....	3.4	1.9	0.9	4.3	5.3
Obstetric, pediatric, and other physicians' aides.....	2.1	2.8	0.2	1.6	5.9
Electrocardiographic technicians.....	1.7	1.2	1.7	1.6	2.3
Electroencephalograph and other medical machine technicians.....	4.0	(1)	(1)	3.6	4.9
Ambulance drivers and attendants.....	2.2	0	(1)	5.2	1.8
Personnel in other health occupations.....	3.1	2.3	2.9	2.2	4.4
Trainees not elsewhere reported.....	3.8	0	0	3.2	6.3

¹ Percent not calculated when base is less than 500.

Table 25. Percent distribution of professional and technical health personnel by category in community hospitals in the United States, by bed size of hospital: 1969

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
All professional and technical.....	100.0	100.0	100.0	100.0	100.0
Physicians.....	5.2	1.6	1.8	5.8	10.4
Medical interns and residents.....	3.1	0.6	0.8	3.2	7.3
Other physicians.....	2.1	0.9	1.0	2.6	3.1
Dental services.....	0.2	(1)	(1)	0.3	0.3
Dental interns and residents.....	0.1	(1)	(1)	(1)	(1)
Other dentists.....	0.1	(1)	(1)	0.2	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)	(1)	(1)
Dental assistants.....	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services.....	6.2	4.8	5.0	6.7	7.5
Clinical laboratory scientists.....	0.3	(1)	0.2	0.2	0.5
Clinical laboratory technologists.....	2.8	2.5	2.2	3.1	3.3
Cytotechnologists-technicians.....	0.2	(1)	0.2	0.3	0.2
Histologic technicians and aides.....	0.3	(1)	0.2	0.4	0.5
Other clinical laboratory personnel.....	2.6	1.9	2.2	2.7	3.0
Dietary services.....	1.7	2.8	1.5	1.4	1.8
Dietitians.....	0.7	1.1	0.6	0.6	0.7
Dietary technicians.....	1.0	1.7	0.9	0.8	1.1
Medical record services.....	2.6	3.4	2.7	2.4	2.3
Medical record librarians.....	0.4	0.8	0.4	0.2	(1)
Medical record technicians.....	0.4	0.8	0.4	0.4	0.2
Medical record clerks.....	1.8	1.8	1.9	1.8	2.0
Nursing services.....	70.0	74.8	76.1	69.0	62.1
Registered nurses.....	27.7	23.6	30.2	30.0	24.6
Practical or vocational nurses, licensed.....	12.1	14.1	13.6	11.3	10.6
Nursing aides, orderlies, and attendants.....	26.5	35.2	29.0	23.5	22.3
Ward clerks.....	3.7	1.9	3.3	4.2	4.6
Pharmacy.....	1.4	1.4	1.4	1.4	1.3
Pharmacists, licensed.....	0.8	1.0	0.8	0.8	0.7
Pharmacy assistants and aides.....	0.6	0.4	0.6	0.6	0.6

Table 25.—Continued

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
Radiologic technology.....	2.7	3.1	2.8	2.5	2.5
X-ray technologists-technicians.....	1.9	2.4	2.0	1.8	1.7
Nuclear medical and radiation therapy technologists-technicians.....	0.2	(1)	(1)	0.2	0.3
Radiologic assistants.....	0.6	0.6	0.7	0.5	0.5
Therapeutic services.....	2.8	1.8	2.5	3.1	3.4
Occupational therapists.....	0.1	(1)	(1)	0.1	0.2
Occupational therapy assistants and aides.....	0.1	(1)	(1)	(1)	(1)
Physical therapists.....	0.4	0.5	0.4	0.5	0.5
Physical therapy assistants and aides.....	0.5	0.4	0.5	0.6	0.4
Speech pathologists and audiologists.....	0.1	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	0.1	(1)	(1)	(1)	(1)
Inhalation therapists and aides.....	1.0	0.4	0.8	1.3	1.0
Social workers.....	0.4	(1)	0.3	0.4	0.8
Social work assistants and aides.....	0.1	(1)	(1)	0.1	0.3
Other health professional and technical.....	7.2	6.2	6.2	7.4	8.4
Hospital administrators and assistants.....	0.9	1.9	0.9	0.6	0.6
Medical secretaries.....	1.2	0.8	1.0	1.4	1.2
Surgical aides.....	1.4	1.4	1.4	1.5	1.3
Obstetric, pediatric, and other physicians' aides.....	0.6	0.4	0.4	0.6	0.4
Electrocardiographic technicians.....	0.5	0.5	0.4	0.6	0.5
Electroencephalograph and other medical machine technicians.....	0.2	(1)	(1)	0.2	0.3
Ambulance drivers and attendants.....	0.2	0.4	(1)	0.1	0.3
Personnel in other health occupations.....	0.8	0.2	0.6	0.8	1.4
Trainees not elsewhere reported.....	1.4	0.6	0.7	1.6	2.4

¹ Percent not calculated when number of personnel is less than 500.

Table 26. *Percent of personnel providing services in selected service categories in community hospitals in the United States, by bed size of hospital: 1969*

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
Clinical laboratory services.....	100.0	100.0	100.0	100.0	100.0
Clinical laboratory scientists.....	4.3	(1)	4.0	3.3	7.0
Clinical laboratory technologists.....	45.7	52.3	42.8	46.0	43.4
Cytotechnologists-technicians.....	3.5	(1)	3.9	3.9	2.8
Histologic technicians and aides.....	5.3	(1)	4.7	5.9	6.4
Other clinical laboratory personnel.....	41.2	40.0	44.6	40.9	40.4
Dietary services.....	100.0	100.0	100.0	100.0	100.0
Dietitians.....	40.5	40.1	41.4	41.1	39.5
Dietary technicians.....	59.5	59.9	58.6	58.9	60.5
Medical record services.....	100.0	100.0	100.0	100.0	100.0
Medical record librarians.....	14.3	24.7	16.2	10.0	(1)
Medical record technicians.....	15.3	22.6	15.8	14.1	7.9
Medical record clerks.....	70.4	52.7	68.0	75.9	84.9
Nursing services.....	100.0	100.0	100.0	100.0	100.0
Registered nurses.....	39.6	31.6	39.7	43.4	39.6
Practical or vocational nurses, licensed.....	17.3	18.8	17.9	16.5	17.0
Nursing aides, orderlies, and attendants.....	37.8	47.1	38.1	34.0	36.0
Ward clerks.....	5.3	2.5	4.3	6.1	7.4
Pharmacy.....	100.0	100.0	100.0	100.0	100.0
Pharmacists, licensed.....	58.2	70.4	57.3	55.5	53.1
Pharmacy assistants and aides.....	41.8	29.6	42.7	44.5	46.9
Radiologic technology.....	100.0	100.0	100.0	100.0	100.0
X-ray technologists-technicians.....	71.1	78.0	71.0	69.5	66.9
Nuclear medical and radiation therapy technologists-technicians.....	7.3	(1)	(1)	9.7	11.1
Radiologic assistants.....	21.6	19.9	24.4	20.8	22.0
Therapeutic services.....	100.0	100.0	100.0	100.0	100.0
Occupational therapists.....	4.4	(1)	(1)	3.3	6.3
Occupational therapy assistants and aides.....	2.8	(1)	(1)	(1)	(1)
Physical therapists.....	16.5	26.8	17.1	15.4	13.2
Physical therapy assistants and aides.....	17.2	22.7	20.0	18.6	10.3
Speech pathologists and audiologists.....	3.0	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	3.3	(1)	(1)	(1)	(1)
Inhalation therapists and aides.....	34.9	22.0	34.4	41.9	28.4
Social workers.....	13.6	(1)	10.2	11.5	22.3
Social work assistants and aides.....	4.3	(1)	(1)	3.6	7.7

¹ Percent not calculated when number of personnel is less than 500.

Table 27. *Average number of professional and technical health personnel per 100 beds in community hospitals in the United States, by category of personnel and bed size of hospital: 1969*

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
All professional and technical.....	164.9	143.6	155.0	177.0	174.6
Physicians.....	8.6	2.3	2.7	10.3	18.1
Medical interns and residents.....	5.2	0.9	1.2	5.7	12.8
Other physicians.....	3.4	1.3	1.5	4.5	5.3
Dental services.....	0.3	(1)	(1)	0.5	0.6
Dental interns and residents.....	0.1	(1)	(1)	(1)	(1)
Other dentists.....	0.2	(1)	(1)	0.3	(1)
Dental hygienists, licensed.....	(1)	(1)	(1)	(1)	(1)
Dental assistants.....	(1)	(1)	(1)	(1)	(1)
Dental laboratory technicians.....	(1)	(1)	(1)	(1)	(1)
Clinical laboratory services.....	10.2	6.8	7.8	11.9	13.0
Clinical laboratory scientists.....	0.4	(1)	0.3	0.4	0.9
Clinical laboratory technologists.....	4.7	3.6	3.4	5.5	5.6
Cytotechnologists-technicians.....	0.4	(1)	0.3	0.5	0.4
Histologic technicians and aides.....	0.5	(1)	0.4	0.7	0.8
Other clinical laboratory personnel.....	4.2	2.7	3.5	4.9	5.3
Dietary services.....	2.9	4.0	2.3	2.5	3.1
Dietitians.....	1.2	1.6	0.9	1.0	1.2
Dietary technicians.....	1.7	2.4	1.3	1.5	1.9
Medical record services.....	4.3	4.9	4.2	4.2	4.0
Medical record librarians.....	0.6	1.2	0.7	0.4	(1)
Medical record technicians.....	0.7	1.1	0.7	0.6	0.3
Medical record clerks.....	3.0	2.6	2.9	3.2	3.4
Nursing services.....	115.5	107.4	117.9	122.1	108.5
Registered nurses.....	45.7	33.9	46.8	53.0	43.0
Practical or vocational nurses, licensed.....	20.0	20.2	21.1	20.1	18.4
Nursing aides, orderlies, and attendants.....	43.7	50.5	45.0	41.5	39.0
Ward clerks.....	6.1	2.7	5.1	7.4	8.1
Pharmacy.....	2.2	2.0	2.1	2.4	2.3
Pharmacists, licensed.....	1.3	1.4	1.2	1.3	1.2
Pharmacy assistants and aides.....	0.9	0.6	0.9	1.1	1.1

Table 27.—*Continued*

Category of personnel	All sizes	Bed size of hospital			
		Less than 100	100-199	200-499	500 and more
Radiologic technology.....	4.4	4.5	4.3	4.5	4.3
X-ray technologists-technicians.....	3.1	3.5	3.1	3.1	2.9
Nuclear medical and radiation therapy technologists-technicians.....	0.3	(1)	(1)	0.4	0.5
Radiologic assistants.....	1.0	0.9	1.1	0.9	0.9
Therapeutic services.....	4.6	2.6	3.8	5.5	6.0
Occupational therapists.....	0.2	(1)	(1)	0.2	0.4
Occupational therapy assistants and aides.....	0.1	(1)	(1)	(1)	(1)
Physical therapists.....	0.8	0.7	0.7	0.9	0.8
Physical therapy assistants and aides.....	0.8	0.6	0.8	1.0	0.6
Speech pathologists and audiologists.....	0.1	(1)	(1)	(1)	(1)
Recreation therapists and aides.....	0.2	(1)	(1)	(1)	(1)
Inhalation therapists and aides.....	1.6	0.6	1.3	2.3	1.7
Social workers.....	0.6	(1)	0.4	0.6	1.3
Social work assistants and aides.....	0.2	(1)	(1)	0.2	0.5
Other health professional and technical.....	11.8	9.0	9.7	13.1	14.7
Hospital administrators and assistants.....	1.5	2.7	1.4	1.1	1.1
Medical secretaries.....	1.9	1.2	1.6	2.4	2.1
Surgical aides.....	2.4	2.0	2.2	2.7	2.2
Obstetric, pediatric, and other physicians' aides.....	0.9	0.5	1.2	1.1	0.7
Electrocardiographic technicians.....	0.8	0.7	0.7	1.0	0.9
Electroencephalograph and other medical machine technicians.....	0.3	(1)	(1)	0.3	0.4
Ambulance drivers and attendants.....	0.4	0.6	(1)	0.2	0.6
Personnel in other health occupations.....	1.3	0.4	1.0	1.5	2.4
Trainees not elsewhere reported.....	2.3	0.8	1.1	2.7	4.1

NOTE.—Column figures may not add to totals and subtotals due to rounding.

¹ Rate not calculated when number of personnel is less than 500.

Table 28. *Number of professional and technical health personnel employed in community hospitals in the United States, by geographic region and bed size of hospital: 1969*

Region and bed size of hospital	All professional and technical	Physicians	Nursing personnel	Other professional and technical
Northeast:				
All sizes.....	388,000	27,400	262,600	98,000
Less than 100.....	34,500	500	26,100	7,900
100-199.....	67,900	1,500	51,600	14,800
200-499.....	181,700	12,000	123,700	46,000
500 and over.....	103,900	13,400	61,200	29,300
North Central:				
All sizes.....	438,500	18,500	314,400	105,600
Less than 100.....	82,100	1,700	62,200	18,200
100-199.....	83,700	1,200	64,800	17,700
200-499.....	179,400	7,800	127,800	43,800
500 and over.....	93,300	7,800	59,600	25,900
South:				
All sizes.....	395,200	22,300	273,500	99,400
Less than 100.....	83,800	1,400	61,400	21,000
100-199.....	88,300	800	68,100	19,400
200-499.....	150,100	12,600	97,800	39,700
500 and over.....	73,000	7,500	46,200	19,300
West:				
All sizes.....	212,400	6,200	153,500	52,700
Less than 100.....	61,800	500	46,400	14,900
100-199.....	41,200	1,300	29,500	10,400
200-499.....	80,300	2,000	58,600	19,700
500 and over.....	29,100	2,400	19,000	7,700

Table 29. *Number of professional and technical health personnel per 100 beds employed in community hospitals in the United States, by geographic region and bed size of hospital: 1969*

Region and bed size of hospital	All professional and technical	Physicians	Nursing personnel	Other professional and technical
Northeast:				
All sizes.....	176.8	12.5	119.7	44.6
Less than 100.....	160.4	2.4	121.3	36.7
100-199.....	164.7	3.7	125.2	35.8
200-499.....	181.9	11.9	123.9	46.1
500 and over.....	182.6	23.5	107.5	51.6
North Central:				
All sizes.....	161.9	6.8	116.1	39.0
Less than 100.....	145.3	3.1	110.1	32.1
100-199.....	150.5	2.1	116.5	31.9
200-499.....	171.5	7.4	122.2	41.9
500 and over.....	172.1	14.4	110.0	47.7
South:				
All sizes.....	156.7	8.8	108.4	39.5
Less than 100.....	129.9	2.1	95.3	32.5
100-199.....	144.8	1.5	111.6	31.7
200-499.....	181.0	15.1	118.0	47.9
500 and over.....	166.6	17.1	105.4	44.1
West:				
All sizes.....	167.1	4.9	120.8	41.4
Less than 100.....	153.8	(1)	115.5	37.0
100-199.....	174.1	5.8	124.6	43.7
200-499.....	171.5	4.3	125.1	42.1
500 and over.....	177.3	14.7	115.6	47.0

¹ Rate not calculated when number of personnel is less than 500.

Table 30. *Number of persons employed in selected personnel categories in A.H.A.-registered hospitals in the United States: 1966 and 1969*

1966 survey		1969 survey	
Category of personnel	Number employed	Category of personnel	Number employed
Medical technologists (ASCP registered, other registered, other).....	54,500	Clinical laboratory technologists (college graduates).....	42,400
Cytotechnologists-cytotechnicians (ASCP registered, other).....	1,600	Cytotechnologists-technicians.....	3,100
Histologic technicians (ASCP registered, other).....	3,900	Histologic technicians and aides.....	5,300
Certified laboratory assistants (ASCP certified, other laboratory assistants and aides).....	14,600	Other clinical laboratory personnel (Includes medical technologists not college graduates, technicians, assistants, aides).....	40,500
Dietitians (A.D.A. qualified, other).....	12,700	Dietitians (at least baccalaureate level)...	11,900
Medical record librarians (AAMRL registered, other).....	6,300	Medical record librarians.....	6,000
Medical record technicians (AAMRL certified, other).....	10,100	Medical record technicians.....	6,200
Nurses, professional.....	361,000	Registered nurses.....	439,800
Nurses, licensed practical or vocational..	150,600	Practical or vocational nurses, licensed..	193,100
Nursing aides, orderlies, attendants.....	492,000	Nursing aides, orderlies, attendants.....	535,100
Licensed pharmacists.....	9,400	Pharmacists, licensed.....	12,700
Pharmacy assistants.....	5,600	Pharmacy assistants and aides.....	9,300
Radiation therapy technologists (technicians—ARRT registered, other).....	24,000	X-ray technologists-technicians.....	29,300
Occupational therapists (AOTA registered, other).....	4,100	Occupational therapists.....	4,800
Occupational therapy assistants (AOTA certified, other and aides).....	3,800	Occupational therapy assistants and aides.....	4,600
Physical therapists (qualified, other)....	8,500	Physical therapists.....	8,000
Physical therapy assistants and aides....	5,200	Physical therapy assistants and aides....	8,000
Speech pathologists and audiologists (ASHA certified, other).....	1,200	Speech pathologists and audiologists....	1,600
Recreation therapists.....	3,800	Recreation therapists and aides.....	5,100
Inhalation therapists (AAIT registered, other).....	5,600	Inhalation therapists and aides.....	13,900
Social workers (master's in social work, baccalaureate).....	10,700	Social workers (college graduates).....	14,000
Social work assistants and aides (non-BA or MA).....	1,500	Social work assistants and aides.....	3,700
Electrocardiograph technicians.....	5,900	Electrocardiographic technicians.....	8,500

Table 31. *Estimated number of hospitals and hospital beds in the United States, by ownership, type, and bed size of hospital and geographic region: 1969*

[in thousands]

Ownership, type, and bed size of hospital	All regions	Northeast	North Central	South	West
Number of hospitals:					
Total.....	7,930	1,380	2,250	2,740	1,560
Ownership:					
Federal.....	420	70	80	150	120
State and local governmental.....	2,370	1,310	2,170	2,590	1,440
Nongovernmental.....	5,140				
Type:					
Non-Federal long stay:					
General and special.....	560	130	140	140	150
Psychiatric.....	450	110	150	90	100
Community:					
Total.....	6,500	1,070	1,880	2,360	1,190
Under 100 beds.....	3,990	400	1,110	1,620	860
100-199 beds.....	1,270	290	380	440	160
200-499 beds.....	1,020	310	310	250	150
500 beds and over.....	220	70	80	50	20
Hospital beds:					
Total.....	1,646	458	444	496	248
Ownership:					
Federal.....	221	59	29	106	27
State and local governmental.....	727	399	415	390	221
Nongovernmental.....	698				
Type:					
Non-Federal long stay:					
General and special.....	117	44	19	27	27
Psychiatric.....	438	136	124	111	67
Community:					
Total.....	870	219	272	252	127
Under 100 beds.....	183	21	57	65	40
100-199 beds.....	182	41	56	61	24
200-499.....	334	100	105	82	47
500 beds and over.....	171	57	54	44	16

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